1.1.1: The Institutional ensures effective curriculum planning and delivery through a well-planned and documented process including Academic calendar and conduct of continuous internal Assessment

INDEX

S. No	Description	Pg. No.
1	Institute Academic Committee Minutes	2-8
2	Department Academic Committee Minutes	9-18
3	University Academic Calendar (JNTUH)	19-24
4	Institute Academic Calendar	25-30
5	Department Academic Calendar	31-36
6	Department wise work load	37-41
7	Department wise time tables	42-43
8	Continuous Internal Evaluation	44-87
9	Sample course file	88-261
9	Syllabus completion report	262-264
10	MID Examination Circulars and time tables	265-279
12	Semester Examination Time tables	280-282
13	External Project schedule	283-285
14	Sample CO-PO Attainment	286-289

AVANTHI INSTITUTE OF PHARMACEUTICAL SCIENCES
(Approved by PCI, AICTE & Affiliated to JNTUH)
Gunthapally (V), Abdullapurmet (M), R.R. Dist., Near Ramoji Filmcity, Hyderabad - 501 512.

Date: 10.08.2020

CIRCULAR

This is to inform that the below mentioned staff members are appointed as Institutional Academic Committee members for the Academic year 2020-21 to discuss Institutional academic matters.

S NO	NAME OF THE FACULTY	DESIGNATION	SIGNATURE
1	Dr.K. BALAJI ,PRINCIPAL, AIPS	CHAIRPERSON	
2	Dr. Y JAYAPRADHA, DIRECTOR-HR	MEMBER	
3	Dr. NIHAR RANJAN DAS,VICE PRINCIPAL,AIPS IQAC COORDINATOR	MEMBER	
4	Dr. M. RAMAKRISHNA PROFESSOR AND HEAD. DEPARTMENT OF PHARMACY	MEMBER	
5	B. MANJULA ASSOCIATE PROFESSOR	MEMBER	
6	Dr. G. SAI KIRAN	MEMBER	
7	Dr. K. NAGARAJU	MEMBER	
8	M.RAJASHEKAR,PHYSICAL DIRECTOR	MEMBER	
9	S.SRIDEVI,LIBRARIAN	MEMBER	

PRINCIPAL

Copy to:

1.ALL HODs

2.IQAC Coordinator

- PRINCIPAL
Avanthi's Institute of Pharmaceutical Sciences
Gunthapally (V), Hayath Nagar (M),
Ranga Reddy Dist.

INSTITUTIONAL ACADEMIC PLANNING & ADVISORY COMMITTEE

Institutional Academic Planning & Advisory Committee Members For the Academic Year 2020-2021

S NO	NAME OF THE FACULTY	DESIGNATION
1	Dr.K. BALAJI ,PRINCIPAL, AIPS	CHAIRPERSON
2	Dr. Y JAYAPRADHA, DIRECTOR-HR	MEMBER
3	Dr. NIHAR RANJAN DAS,VICE PRINCIPAL,AIPS IQAC COORDINATOR	MEMBER
4	Dr. M. RAMAKRISHNA PROFESSOR AND HEAD. DEPARTMENT OF PHARMACY	MEMBER
5	B. MANJULA ASSOCIATE PROFESSOR	MEMBER
6	Dr. G. SAI KIRAN	MEMBER
7	Dr. K. NAGARAJU	MEMBER
8	P. LAVANYA	MEMBER
9	M.RAJASHEKAR,PHYSICAL DIRECTOR	MEMBER
10	S.SRIDEVI,LIBRARIAN	MEMBER

Functions of the Academic Committee:

1. The academic committee is responsible for imbibing the best practices to provide an improved academic system for the present and future students.

2. The committee is also accountable for practices, such as conducting academic award functions to honor students for academic excellence.

3. Propose the academic requirements (Theory, Laboratory and Examination related) of each Department.

4. Scheduling of various academic activities.

5. Review of the academic activities.

6.Perform such other functions as may be assigned by the governing body

- PRINCIPAL
Avanthi's Institute of Pharmaceutical Sciences
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Ranga Reddy Dist.

AIPS/AC/2021-2022/01

Date: 19.08.2020

CIRCULAR

This is to inform all the staff members that Institutional Academic Committee will be meeting on 22.08.2020 at 10.00 AM in the Principal's chamber to discuss the following agenda. All members are requested to attend the meeting without fail.

Agenda:

1. Preparation of institute academic calendar of 2020-2021
2. Value added courses
3. Hospital training sessions and visits
4. Pharmacological and Analytical Project works
5. Research works and collaboration
6. Workshops/FDPs
7. Industrial visits
8. Training and Placements
9. Sports/NSS activities
10. Any other issues

AVANTHI INSTITUTE OF PHARMACEUTICAL SCIENCES ★ ABDULLAPURMET ★

PRINCIPAL

PRINCIPAL
Avanthi's Institute of Pharmaceutical Science
Gunthapally (V), Hayath Nagar (M),
Ranga Reddy Dist.

Copy to:

1. All HODS
2. IQAC coordinator
3. All the Committee Members

MINUTES OF THE INSTITUTIONAL ACADEMIC PLANNING & ADVISORY COMMITTEE

The Institutional Academic Committee meeting was held on 22.08.2020 at 10AM in Principal's chamber. The principal welcomed the staff and briefed on the above objective of the Institutional Academic Committee meeting. The principal started the deliberations by discussing the Academic issues and emphasized the need to concentrate on new University regulations.

Agenda Item 1:

Preparation of Institute academic calendar of 2020-2021

.

Resolution:

- Dr. Nihar Ranjan Das IQAC Coordinator, prepared the college Academic Calendar based on the Academic Calendar issues by the University and is handed over to the Head of the Department of Pharmacy.
- Department wise Academic Calendar was prepared by the Head of the Department basing on the Calendar issued by the Coordinator and was sent to the IQAC coordinator for his approval.
- Timetables were prepared and workloads were allotted to the faculty based

Academic

Calendar of the institute as per the curriculum of the current semester.

Agenda Item 2

Value added Courses

Resolution:

Dr. G. Sai Kiran, Professor, The member of the committee have been proposed that value added courses should be included in each department though it's not included in the curriculum as it finds important for the development and employability of the students.

Agenda Item 3:

Hospital training sessions and visits:

Resolution:

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The members suggested that every student should complete atleast one internship per year.

Agenda Item 4:

Pharmacological and Analytical Project works

Resolution:

The members of the committee assigned the faculty to guide the students in project

Agenda Item 5:

Research Works

Resolutions

- Dr. Y. Jayapradha, advised the faculty members to Publish at least one research paper per semester in High Indexed Journal. The entire remaining faculty were suggested to publish one paper in Scopus journal.
- B. Manjula advised all the faculty members to attend the FDP every year.
- Dr. K. Nagaraju, advised all the faculty members to undergo Internship Academic Interaction programmes.

Agenda Item 6:

Training and placements

Resolution:

- The Principal, AIPS staff members discussed and took a resolution and informed and the faculty members to implement the following from the academic year.
- Students who cleared all the subjects and secured CGPA above 7 should enroll for GPAT Programme.
- Students who cleared all the subjects and obtained CGPA between 6-7 should enroll for PGECET Programme.
- All the remaining students should attend CRT classes conducted by the college.
- Dr. M. Rama Krishna, informed the faculty members to organize various activities in the form of Competitions, Guest lectures, Career guidance, Entrepreneurship programmes etc for the students to improve their knowledge, skills and keep them abreast with the changing demands of the industries.

Agenda Item 7:

Workshops/FDPS

Resolution: Dr. Y. Jayapradha , suggested the faculty to attend the FDP every year.

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- She suggested the importance of proving training programmes to non-teaching staff in Ms Office, Ms Word and Excel which are very useful in drafting and for preparing documents.
- She also advised the English faculty to train the junior faculty and nonteaching staff to compose emails, notices, official letters, circulars which are necessary for the needs of their job and also for the professional development of the institution

Agenda Item 8:

Industrial Visits

Resolution:

- Dr. K. Balaji, proposed an idea of organizing regular industrial visits for the students Inreputed industries like Pfizer, Aurabindo
- To acquire knowledge on the working of men and machinery in different pharmacy

Industries

- Dr. Nihar Ranjan Das suggested for arranging at least two guest lecturers to students in a semester.

Agenda Item 9:

Sports/NSS Activities

Resolution:

- M. Rajashekar proposed organizing Sports activities for the students and encourages the students to participate in competitions at the university, state or national level Tournaments
- He also informed the faculty members to conduct various technical events and NSS activities like Blood donation camps, Plantation drive, Swacch Bharat Campaign, Health check-up programs etc.

Agenda Item 10

Any other Issues Resolution:

Resolution

- Dr. Nihar Ranjan Das, the IQAC coordinator instructed all the staff members to maintain updated stock registers, Maintenance registers, Complaint registers etc of all the laboratories duly verified by the committee.
- It was also resolved after the discussion and should follow IQAC Audit Action Taken Report.

PRINCIPAL
Avanthi Institute of Pharmaceutical Sciences
Gunthapally (V), Hayath Nagar (M),
Ranga Reddy Dist.

List of Academic Planning & Adivisory Committee Members attended

S.no	Name of the faculty	Designation	Signature
1	Dr.K. BALAJI ,PRINCIPAL, AIPS	CHAIRPERSON	
2	Dr. Y JAYAPRADHA, DIRECTOR-HR	MEMBER	
3	Dr. NIHAR RANJAN DAS,VICE PRINCIPAL,AIPS IQAC COORDINATOR	MEMBER	
4	Dr. M. RAMAKRISHNA PROFESSOR AND HEAD. DEPARTMENT OF PHARMACY	MEMBER	
5	B. MANJULA ASSOCIATE PROFESSOR	MEMBER	
6	Dr. G. SAI KIRAN	MEMBER	
7	Dr. K. NAGARAJU	MEMBER	
8	P. LAVANYA	MEMBER	
9	M.RAJASHEKAR,PHYSICAL DIRECTOR	MEMBER	
10	S.SRIDEVI,LIBRARIAN	MEMBER	

AVANTHI INSTITUTE OF PHARMACEUTICAL SCIENCES * ABDULLAPURMET *

PRINCIPAL

PRINCIPAL
Avanthi's Institute of Pharmaceutical Science
Gunthapally (V), Hayath Nagar (M),
Ranga Reddy Dist.

Date: 22.08.2020

DEPARTMENT OF PHARMACY

CIRCULAR

This is to inform that the Department Academic Committee (DAC) will be held on 26.08.2020

10:30AM at Principal Sir's chamber

Agenda:

1. Preparation of Department progress for the academic year 2020-2021
2. Value added courses related to medical coding, Clinical SAS
3. Certificate courses/ Internship programs on Instrumentation handling
4. Project works on Pharmacological activities and Analytical designs
5. Research works on Plant extracts and their Pharmacological action
6. Training and Placements with respect to Multinational Pharmaceutical Industry needs
7. Industrial visits to formulation Pharmaceutical Industries
8. Extracurricular/ Co-curricular activities
9. Sports/NSS activities
10. Any other issues

PRINCIPAL

AVANTHI INSTITUTE OF PHARMACEUTICAL SCIENCES ★ ABDULLAPURMET ★

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Avanthi's Institute of Pharmaceutical Sciences
Gunthapally (V), Hayath Nagar (M),
Ranga Reddy Dist.

Copy to:

1. All HODS
2. IQAC coordinator
3. All the Committee Members

MINUTES OF THE INSTITUTIONAL ACADEMIC PLANNING & ADVISORY COMMITTEE

The Institutional Academic Committee meeting was held on 26.08.2020 at 10AM in Principal's chamber. The principal welcomed the staff and briefed on the above objective of the institutional Academic Committee meeting. The principal started the deliberations by discussing the Academic Issues and emphasized the need to concentrate on new University regulations.

Agenda Item 1:

Preparation of Department progress for the academic year 2020-2021

Resolution:

Dr. M. Rama Krishna, HOD Pharmacy Analysed the results of B.Pharmacy 2020-2021 academic year and expressed satisfaction for getting more than 86% of pass percentage Committee congratulated the faculty who met the target of 91% or more.

Agenda Item 2:

Value added Courses related to medical coding, Clinical SAS

Resolution:

The members of the committee have been proposed that value added courses related to medical coding, medical scribing and clinical SAS related to be included in each department though it's not included in the curriculum as it finds important for the development and employability of the B. Pharmacy

The members of the committee have been proposed that value added courses related to Quality Assurance and Quality control, Pharmaceutical technology and Pharmacological Assays should be included in each department though its not included in the curriculum as it finds important for the development and employability of the M.Pharmacy students.

Agenda Item 3:

Certificate courses/Internship programs on Instrumentation handling

Resolution:

AVANTHI INSTITUTE OF PHARMACEUTICAL SCIENCES * ABDULLAPURMET *

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- The members suggested that every B. Pharmacy students should complete certification courses/Internship courses related to latest instrumentation handling, thesis writing courses.

Agenda Item 4:

Project works on Pharmacological activities and Analytical designs

Resolution:

- The members of the committee assigned the faculty to guide the B.Pharmacy students in project works related to plant extracts and pharmacological activities, pharmaceutics related projects and analytical projects.
- The members of the committee assigned the faculty to guide the students to perform real time projects related to drug design and drug development

Agenda Item 5:

Research works on Plant Extracts and their Pharmacological

action

Resolution:

- Dr. K. Balaji, Principal adviced the faculty members to publish atleast one research Paper per semester in High Indexed Journal. The entire remaining faculty were

Suggested

to publish one paper in Scopus journal.

- Dr. K. Nagaraju Professor advised all the faculty members to attend the FDP programs every year.

Agenda Item 6:

Training and placements with respect to Multinational Pharmaceutical Industry needs

Resolution:

- The Principal, AIPS staff members discussed and took a resolution and informedand the faculty members to implement the following from the academic year:

PRINCIPAL
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Gunthapally (V), Hayath Nagar (M),
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- Students who cleared all the subjects and secured CGPA above 7 should enroll for GPAT Programme Students who cleared all the subjects and obtained CGPA between 6-7 should
- All the remaining students should attend CRT classes conducted by the college.
- Dr. M. Rama Krishna, informed the faculty members to organize various activities in the form of Competitions, Guest lectures, Career guidance, Entrepreneurship programmes etc for the students to improve their knowledge, skills and keep them abreast with the changing demands of the industries.

Agenda Item 7:

Industrial Visits to formulation Pharmaceutical Industries

Resolution:

- Dr. G. Saikiran proposed an idea of organizing regular industrial visits for the students in reputed multinational Pharmacy industries like Pfizer, Aurabindo, Dr. Reddys Laboratories, DIVIS Laboratories.
- To acquire knowledge on the working of men and machinery in different pharma industries.
- P. Lavanya suggested for arranging at least two guest lecturers to students in a Semester.

Agenda Item 8:

Sports/NSS Activities

Resolution:

- M. Rajashekar proposed organizing Sports activities for the students and encourages the students to participate in competitions at the university, state or national level tournaments.
- He also informed the faculty members to conduct various technical events and NSS He activities like Blood donation camps. Plantation drive, Swacch Bharat Campaign, Health check-up programs etc.,

Agenda Item 9:

Any other Issues

Resolution:

- The IQAC coordinator instructed all the staff members to maintain updated stock registers, Maintenance registers, Complaint registers etc of all the laboratories duly verified by the committee.
- It was also resolved after the discussion and should follow IQAC Audit Action Taken Report

PRINCIPAL
Avanthi's Institute of Pharmaceutical Sciences
Gunthapally (V), Hayath Nagar (M),
Ranga Reddy Dist.

List of DAC Members attended

s.no	Name of the faculty	Designation	Signature
1	Dr.K. BALAJI ,PRINCIPAL, AIPS	CHAIRPERSON	
2	Dr. Y JAYAPRADHA, DIRECTOR-HR	MEMBER	
3	Dr. NIHAR RANJAN DAS,VICE PRINCIPAL,AIPS IQAC COORDINATOR	MEMBER	
4	Dr. M. RAMAKRISHNA PROFESSOR AND HEAD. DEPARTMENT OF PHARMACY	MEMBER	
5	B. MANJULA ASSOCIATE PROFESSOR	MEMBER	
6	Dr. G. SAI KIRAN	MEMBER	
7	Dr. K. NAGARAJU	MEMBER	
8	P. LAVANYA	MEMBER	
9	M.RAJASHEKAR,PHYSICAL DIRECTOR	MEMBER	
10	S.SRIDEVI,LIBRARIAN	MEMBER	

HOD

AVANTHI INSTITUTE OF PHARMACEUTICAL SCIENCES * ABDULLAPURMET *

- PRINCIPAL
Avanthi's Institute of Pharmaceutical Sciences
Gunthapally (V), Hayath Nagar (M),
Ranga Reddy Dist.

PRINCIPAL

DEPARTMENT OF PHARMACY PRACTICE

CIRCULAR

Date: 23.08.2020

This is to inform that the Department Academic Committee (DAC) will be held on 27.08.2020 10:30AM at Principal Sir's chamber.

Agenda:

1. Preparation of department progress for the academic year 2020-212. Hospital training and Hospital visits

3. Clinical Project works

4. Community centers correlated training

5. Placement in Pharma - IT Sector Companies.

6. Value added courses

7. Research works

8 Sports/NSS activities

9. Any other issues

PRINCIPAL

PRINCIPAL
Avanthi's Institute of Pharmaceutical Sciences
Gunthapally (V), Hayath Nagar (M),
Ranga Reddy Dist.

AVANTHI INSTITUTE OF PHARMACEUTICAL SCIENCES * ABDULLAPURMET *

Copy to:

1.All HODS

2.IQAC coordinator

3. All the Committee Members

MINUTES OF THE INSTITUTIONAL ACADEMIC PLANNING & ADVISORY COMMITTEE

The Institutional Academic Committee meeting was held on 27.08.2020 at 10AM in Principal's chamber. The principal welcomed the staff and briefed on the above objective of the Institutional Academic Committee meeting. The principal started the deliberations by discussing the Academic issues and emphasized the need to concentrate on new University regulations.

Agenda Item 1:

Preparation of Department progress for the academic year 2020-2021

Resolution:

B.Manjula, analysed the results of Pharm.D 2020-2021 academic year and expressed satisfaction for getting more than 85% of pass percentage. Committee congratulated the faculty who met the target of 90% or more.

Agenda Item 2:

Hospital training and Hospital visits

Resolution:

- Dr. P. Swathi suggested faculty to train the students to participate in bed side learning.
- Dr. K. Leema proposed an idea of organizing regular hospital visits for the students in reputed hospitals like Global hospital, Gandhi hospital

Agenda Item 3:

Clinical Project works:

Resolution:

The members suggested that every student should complete atleast one clinical project which includes both cases and controls:

Agenda Item 4

Community centers centers correlated training

Resolution:

The members of the committee assigned the Pharmacy practice faculty to The members of the committee assigned the Pharmacy practice faculty to guide the students to participate in community center correlated training such as B.P monitoring, Glucose monitoring

AVANTHI INSTITUTE OF PHARMACEUTICAL SCIENCES * ABDULLAPURMET *

- PRINCIPAL
Avanthi's Institute of Pharmaceutical Sciences
Gunthapally (V), Abdullapurmet (M),
Ranga Reddy Dist.

Agenda Item 5:

Placement in Pharma - IT Sector Companies:

Resolution:

- The Principal, AIPS staff members discussed and took a resolution and informed and the faculty members to implement the following from the academic year.
- Students should attend CRT classes conducted by the college.
- Dr. Md Abdul Azeem informed the faculty members to organize various activities in the form of Competitions, Guest lectures, Career guidance, Entrepreneurship programmes etc for the students to improve their knowledge, skills and keep them abreast with the changing demands of the industries.

Agenda Item 6:

Value added courses

Resolution:

The members of the committee have been proposed that value added courses related to clini-SAP, clinical research, Pharmacovigilance should be included in each department though its not included in the curriculum as it finds important for the development and employability of the students.

Agenda Item 7:

Rearch works

Resolution:

- B.Manjula advised the faculty members to publish atleast one research paper per semester in High Indexed Journal. The entire remaining faculty were suggested to publish one paper in
  Scopus journal

Agenda Item 8:

Sports/NSS activities

Resolution:

- M.Rajashekar proposed organizing Sports activities for the students and encourages the students to participate in competitions at the university, state or national level tournaments.

AVANTHI INSTITUTE OF PHARMACEUTICAL SCIENCES * ABDULLAPURMET *

- PRINCIPAL
Avanthi's Institute of Pharmaceutical Sciences
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Ranga Reddy Dist.

- MD Abdul Azeem also informed the faculty members to conduct various technical events and NSS activities like Blood donation camps, Plantation drive, Swacch Bharat Campaign, Health check-up programs etc.

Agenda Item 9:

Any other Issues

Resolution:

- Dr. Nihar Ranjan Das The IQAC coordinator instructed all the staff members to maintain updated stock registers, Maintainance registers, and Complaint registers of all the laboratories duly verified by the committee.
- It was also resolved after the discussion and should follow IQAC Audit Action *Taken Report*

AVANTHI INSTITUTE OF PHARMACEUTICAL SCIENCES * ABDULLAPURMET *

- PRINCIPAL -
Avanthi's Institute of Pharmaceutical Sciences
Gunthapally (V), Hayath Nagar (M),
Ranga Reddy Dist.

List Of DAC Members attended

S.no	Name of the faculty	Designation	Signature
1	Dr.K. BALAJI ,PRINCIPAL,AIPS	CHAIR PERSON	
2	Dr.Y.JAYAPRADHA,DIRECTOR-H.R	MEMBER	
3	Dr.NIHAR RANJAN DAS,VICE PRINCIPAL,AIPS IQAC COORDINATOR	MEMBER	
4	B.MANJULA ASSOCIATE PROFESSOR	MEMBER	
5	MD. ABDUL AZEEM, ASSOCIATE PROFESSOR	MEMBER	
6	P. SWATHI PATEL, ASSISTANT PROFESSOR	MEMBER	
7	Dr. K. LEEMA, ASSISTANT PROFESSOR	MEMBER	
8	M.RAJASHEKAR,PHYSICAL DIRECTOR	MEMBER	
9	S.SRIDEVI,LIBRARIAN	MEMBER	

HOD

AVANTHI INSTITUTE OF PHARMACEUTICAL SCIENCES * ABDULLAPURMET *

PRINCIPAL

- PRINCIPAL
Avanthi's Institute of Pharmaceutical Sciences
Gunthapally (V), Hayath Nagar (M),
Ranga Reddy Dist.

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD

Academic Calendar (2020-21)

For All Constituent& Affiliated Colleges of JNTUH

M.Tech. / M.Pharm. I Year - I & II Semesters

M.Tech./ M. Pharm. I Year - I Semester

S. No	Description	From	Duration To
1	Commencement of I Semester classwork / Induction Programme	**16.12.2020**	
2	1st Spell of Instructions	16.12.2020	06.02.2021 (8 Weeks)
3	First Mid Term Examinations	08.02.2021	13.02.2021 (1 Week)
4	Submission of First Mid Term Exam Marks to the University on or before	20.02.2021	
5	2nd Spell of Instructions	15.02.2021	10.04.2021 (8 Weeks)
6	Second Mid Term Examinations	12.04.2021	17.04.2021 (1 Week)
7	Practical classes	19.04.2021	24.04.2021 (1 Week)
8	Submission of Second Mid Term Exam Marks to the University on or before	24.04.2021	
9	Preparation Holidays and Practical Examinations	26.04.2021	01.05.2021 (1 Week)
10	End Semester Examinations	03.05.2021	15.05.2021 (2 Weeks)

M.Tech./ M.Pharm. I Year - II Semester

S. No	Description	From	Duration To
1	Commencement of II Semester classwork	**17.05.2021**	
2	1st Spell of Instructions	17.05.2021	10.07.2021 (8 Weeks)
3	First Mid Term Examinations	12.07.2021	17.07.2021 (1 Week)
4	Submission of First Mid Term Exam Marks to the University on or before	24.07.2021	
5	2nd Spell of Instructions	19.07.2021	11.09.2021 (8 Weeks)
6	Second Mid Term Examinations	13.09.2021	18.09.2021 (1 Week)
7	Preparation Holidays and Practical Examinations	20.09.2021	25.09.2021 (1 Week)
8	Submission of Second Mid Term Exam Marks to the University on or before	25.09.2021	
9	End Semester Examinations	27.09.2021	09.10.2021 (2 Weeks)

Note: All the laboratory courses shall be conducted once normalcy is restored.

INSTITUTE OF PHARMACEUTICAL SCIENCES * AVANTHI * APPOLO MUNICH

Sd/- xxxx
Director, Academic & Planning

- PRINCIPAL
Avanthi's Institute of Pharmaceutical Sciences
Gunthapally (V), Hayath Nagar (M),
Ranga Reddy Dist.

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD

Revised Academic Calendar (2020-21)

For All Constituent& Affiliated Colleges of JNTUH

M.Tech. / M.Pharm. II Year - I & II Semesters

M.Tech./ M. Pharm. II Year - I Semester

S. No	Description	From	Duration To
1	Commencement of I Semester classwork	01.09.2020	
2	1st Spell of Instructions (including Dussehra Recess, previous Semester End Examinations)	01.09.2020	16.11.2020 (11 Weeks)
3	Dussehra Recess	19.10.2020	24.10.2020 (1 Week)
4	Preparation of Project Work Proposals	01.09.2020	28.09.2020 (4 Weeks)
5	Project Work Review–I: Project approval (Part-I commencement)	29.09.2020	03.10.2020
6	Last date for submission of list of approved PRC-I students from the College to the University Examination branch.	06.10.2020	
7	2nd Spell of Instructions (including First Mid Term Exams)	17.11.2020	19.01.2021 (9 Weeks)
8	First Mid Term Examinations	14.12.2020	19.12.2020 (1 Week)
9	Submission of First Mid Term Exam Marks to the University on or before	28.12.2020	
10	Second Mid Term Examinations	20.01.2021	25.01.2021 (1 Week)
11	Preparation Holidays	27.01.2021	30.01.2021
12	Submission of Second Mid Term Exam Marks to the University on or before	30.01.2021	
13	End Semester Examinations	01.02.2021	13.02.2021 (2 Weeks)

M.Tech./ M.Pharm. II Year - II Semester

S. No	Description	From	Duration To
1	Commencement of II Semester (Project Work Continuation) (5.10.2020 to 15.02.2021 - 4 Months – Excluding Previous Semesters Examinations)	15.02.2021	
2	Project Work Review -II (Phase-I)	15.02.2021	17.02.2021
3	** Project Work Review -II(Phase-II)	01.03.2021	03.03.2021
4	Last date for submission of PRC-II marks	06.03.2021	
5	Project Work Review -III (Phase –I)	12.07.2021	17.07.2021
6	Last date for submission of Project Work Review-III (Phase-I) Marks	24.07.2021	
7	* Date of eligibility of thesis submission	24.07.2021	
8	Submission of Thesis and Project Viva – Voce Examination (PRC-III Phase-I) follows	--	

AVANTHI INSTITUTE OF PHARMACEUTICAL SCIENCES * ABDULLAPURMET *

PRINCIPAL
Avanthi's Institute of Pharmaceutical Sciences
Gunthapally (V), Hayath Nagar (M),
Ranga Reddy Dist.

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD

Academic Calendar 2020-21

Pharm. D (Regular) and Pharm.D (PB) I Year

Pharm. D (Regular) and Pharm.D (PB) I Year

S. No	Description	Duration From	To
1	Commencement of classwork / Induction Programme	16.12.2020	
2	1st Spell of Instructions (including Dussehra Recess, previous year End Examinations)	16.12.2020	06.03.2021 (12 Weeks)
3	First Mid Term Examinations	08.03.2021	13.03.2021 (1 Week)
4	Submission of First Mid Term Exam Marks to the University on or before	20.03.2021	
5	2nd Spell of Instructions	15.03.2021	05.06.2021 (12 Weeks)
6	Second Mid Term Examinations	07.06.2021	12.06.2021 (1 Week)
7	Submission of Second Mid Term Exam Marks to the University on or before	19.06.2021	
8	3rd Spell of Instructions (including Summer vacation)	14.06.2021	04.09.2021 (12 Weeks)
9	Third Mid Term Examinations	06.09.2021	11.09.2021 (1 Week)
10	Preparation Holidays and Practical Examinations	13.09.2021	25.09.2021 (2 Weeks)
11	Submission of Third Mid Term Exam Marks to the University on or before	25.09.2021	
12	End / Supplementary Examinations	27.09.2021	09.10.2021 (2 Weeks)

Note: All the laboratory courses shall be conducted once normalcy is restored.

Sd/- xxxx
Director, Academic & Planning

AVANTHI INSTITUTE OF PHARMACEUTICAL SCIENCES * ABDULLAPURMET *

- PRINCIPAL
Avanthi's Institute of Pharmaceutical Sciences
Gunthapally (V), Hayath Nagar (M),
Ranga Reddy Dist.

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD

Revised Academic Calendar 2020-21

Pharm. D (Regular) II, III, IV, V, VI Years and Pharm.D (PB) II, III Years

Pharm. D (Regular) II, III, IV, V Year and Pharm.D (PB) II Year

S. No	Description	Duration From	To
1	Commencement of classwork	01.09.2020	
2	1st Spell of Instructions (including Dussehra Recess, previous year End Examinations)	01.09.2020	12.12.2020 (15 Weeks)
3	Dussehra Recess	19.10.2020	24.10.2020 (1 Week)
4	First Mid Term Examinations	14.12.2020	19.12.2020 (1 Week)
5	Submission of First Mid Term Exam Marks to the University on or before	28.12.2020	
6	2nd Spell of Instructions	21.12.2020	20.03.2021 (13 Weeks)
7	Second Mid Term Examinations	22.03.2021	27.03.2021 (1 Week)
8	Submission of Second Mid Term Exam Marks to the University on or before	03.04.2021	
9	3rd Spell of Instructions (including Summer vacation)	30.03.2021	28.06.2021 (13 Weeks)
10	Summer vacation	17.05.2021	29.05.2021 (2 Weeks)
11	Third Mid Term Examinations	29.06.2021	03.07.2021 (1 Week)
12	Preparation Holidays and Practical Examinations	05.07.2021	17.07.2021 (2 Weeks)
13	Submission of Third Mid Term Exam Marks to the University on or before	17.07.2021	
14	End / Supplementary Examinations	19.07.2021	31.07.2021 (2 Weeks)

Pharm. D (Regular) VI Year and Pharm.D (PB) III Year

S. No	Description	Duration From	To
1	Commencement of internship in General ward	01.09.2020	27.02.2021 (6 Months)
2	Report submission of internship in General ward	01.03.2021	
3	Commencement of internship in Specialty ward-1	02.03.2021	01.05.2021 (2 Months)
4	Report submission of internship in Specialty ward-1	03.05.2021	
5	Commencement of internship in Specialty ward-2	04.05.2021	03.07.2021 (2 Months)
6	Report submission of internship in Specialty ward-2	05.07.2021	
7	Commencement of internship in Specialty ward–3	06.07.2021	04.09.2021 (2 Months)
8	Report submission of internship in Specialty ward-3	06.09.2021	
9	Final viva of internship	08.09.2021	

Note: 1 All the laboratory courses shall be conducted once normalcy is restored.

2 Regular End Examinations of previous year (including lab exams) as per the data received from the Examination branch: 12.10.2020, 27.10.2020, 31.10.2020, 04.11.2020 to 16.11.2020.

Sd/- xxxxxx

DIRECTOR, ACADEMIC & PLANNING

AVANTHI INSTITUTE OF PHARMACEUTICAL SCIENCES * ABDULLAPURMET *

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JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD

ACADEMIC CALENDAR 2020-21

For All Constituent & Affiliated Colleges of JNTUH

B. Tech./B.Pharm. I Year I & II Semesters

(Online Classes)

B. Tech./B.Pharm. I Year - I Semester

S. No	Description	Duration	
		From	To
1	Commencement of I Semester classwork / Orientation Programme	01.12.2020	
2	1st Spell of Instructions	01.12.2020	23.01.2021 (8 Weeks)
3	First Mid Term Examinations	25.01.2021	30.01.2021 (1 Week)
4	Submission of First Mid Term Exam Marks to the University on or before	06.02.2021	
5	Parent-Teacher Meeting	12.02.2021	
6	2nd Spell of Instructions	01.02.2021	27.03.2021 (8 Weeks)
7	Second Mid Term Examinations (including public holidays)	29.03.2021	06.04.2021 (1 Week)
8	Preparation Holidays and Practical Examinations	07.04.2021	12.04.2021 (1 Week)
9	Submission of Second Mid Term Exam Marks to the University on or before	12.04.2021	
10	End Semester Examinations	15.04.2021	29.04.2021 (2 Weeks)

B. Tech./ B.Pharm. I Year - II Semester

S. No	Description	Duration	
		From	To
1	Commencement of II Semester classwork	30.04.2021	
2	1st Spell of Instructions	30.04.2021	24.06.2021 (8 Weeks)
3	First Mid Term Examinations	25.06.2021	30.06.2021 (1 Week)
4	Submission of First Mid Term Exam Marks to the University on or before	05.07.2021	
5	Parent-Teacher Meeting	09.07.2021	
6	2nd Spell of Instructions	01.07.2021	25.08.2021 (8 Weeks)
7	Second Mid Term Examinations	26.08.2021	01.09.2021 (1 Week)
8	Preparation Holidays and Practical Examinations	02.09.2021	08.09.2021 (1 Week)
9	Submission of Second Mid Term Exam Marks to the University on or before	08.09.2021	
10	End Semester Examinations	09.09.2021	22.09.2021 (2 Weeks)

Note: All the laboratory courses shall be conducted once normalcy is restored.

REGISTRAR

AVANTHI INSTITUTE OF PHARMACEUTICAL SCIENCES * ABDULLAPURMET *

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JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD

REVISED ACADEMIC CALENDAR 2020-21

For All Constituent & Affiliated Colleges of JNTUH

B. Tech./B.Pharm. II, III & IV Years I & II Semesters

B. Tech./B.Pharm. II, III & IV Years - I Semester

S. No	Description	From	Duration To
1	Commencement of I Semester classwork	01.09.2020	
2	1st Spell of Instructions (including Dussehra Recess)	01.09.2020	31.10.2020 (9 Weeks)
3	Dussehra Recess	19.10.2020	24.10.2020
4	End Examinations preparation holidays - Previous Semesters	02.11.2020	04.11.2020 (3 days)
5	2nd Spell of Instructions (including First Mid Term Examinations)	14.12.2020	13.02.2021 (9 Weeks)
6	First Mid Term Examinations	21.12.2020	28.12.2020 (1 Week)
7	Submission of First Mid Term Exam Marks to the University on or before	04.01.2021	
8	Second Mid Term Examinations	15.02.2021	20.02.2021 (1 Week)
9	Practical classes	22.02.2021	27.02.2021 (1 Week)
10	Preparation Holidays and Practical Examinations	01.03.2021	06.03.2021 (1 Week)
11	Submission of Second Mid Term Exam Marks to the University on or before	27.02.2021	
12	End Semester Examinations	08.03.2021	20.03.2021 (2 Weeks)

B. Tech./ B.Pharm. II, III & IV Years - II Semester

S. No	Description	From	Duration To
1	Commencement of II Semester classwork	**22.03.2021**	
2	1st Spell of Instructions	22.03.2021	15.05.2021 (8 Weeks)
3	Summer Vacation	17.05.2021	29.05.2021 (2 Weeks)
4	First Mid Term Examinations	31.05.2021	05.06.2021 (1 Week)
5	Submission of First Mid Term Exam Marks to the University on or before	11.06.2021	
6	2nd Spell of Instructions	07.06.2021	31.07.2021 (8 Weeks)
7	Second Mid Term Examinations	02.08.2021	07.08.2021 (1 Week)
8	Preparation Holidays and Practical Examinations	09.08.2021	14.08.2021 (1 Week)
9	Submission of Second Mid Term Exam Marks to the University on or before	14.08.2021	
10	End Semester Examinations	16.08.2021	28.08.2021 (2 Weeks)

Note: 1 All the laboratory courses shall be conducted once normalcy is restored.

2 Regular End Semester Examinations of previous Semester (including lab exams) as per the data received from the Examination branch: 05.11.2020 to 11.12.2020.

AVANTHI INSTITUTE OF PHARMACEUTICAL SCIENCES * ABDULLAPURMET *

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DIRECTOR, ACADEMIC & PLANNING

INSTITUTIONAL ACADEMIC CALENDER

ACADEMIC YEAR 2020-2021

S.NO	DATE	NAME OF THE EVENT
AUG	22.08.2020	INSTITUTIONAL ACADEMIC COMMITTEE MEETING
	26.08.2020	DEPARTMENT OF PHARMACY ACADEMIC COMMITTEE MEETING
	27.08.2020	DEPARTMENT OF PHARMACY PRACTICE ACADEMIC COMMITTEE MEETING
SEPT	01.09.2020	COMMENCEMENT OF CLASSWORK OF PHARM-D 2^{ND} ,3^{RD} ,4^{TH} ,5^{TH}& 6^{TH} YEARS COMMENCEMENT OF CLASSWORK OF B. PHARM I SEMESTER CLASSWORK 2^{ND} ,3^{RD} & 4^{TH} YEARS
	01.09.2020	COMMENCEMENT OF I SEMESTER CLASSWORK OF M. PHARM 2^{ND} YEAR
	01.09.2020-27.02.2021	COMMENCEMENT OF INTERNSHIP IN GENERAL WARD OF PHARM-D 3^{RD}& 4^{TH} YEARS
	01.09.2020-31.10.2020	1^{ST} SPELL OF INSTRUCTIONS (INCLUDING DUSSEHRA RECESSS) OF B. PHARM I SEMESTER 2^{ND} ,3^{RD} & 4^{TH} YEARS
	01.09.2020-12.12.2020	1^{ST} SPELL OF INSTRUCCTIONS (INCLUDING DUSSEHRA RECESS, PREVIOUS YEAR END EXAMINATIONS) OF PHARM-D 2^{ND} ,3^{RD} ,4^{TH} ,5^{TH}& 6^{TH} YEARS
	01.09.2020-16.11.2020	1^{ST} SPELL OF INSTRUCTIONS (INCLUDING DUSSEHRA RECESS, PREVIOUS SEMESTER END EXAMINATIONS) OF M. PHARM 2^{ND} YEAR
	01.09.2020-28.09.2020	PREPARATION OF PROJECT WORK OF I SEMESTER OF M. PHARM 2^{ND} YEAR
	02.09.2020	AWARENESS PROGRAMME ON HIGHER EDUCATION
	03.09.2020	NATIONAL NUTRITION DAY
	05.09.2020	TEACHER'S DAY
	25.09.2020	WORLD PHARMACIST DAY
	29.09.2020-03.10.2020	PROJECT WORK REVIEW-I: PROJECT APPROVAL (PART-I COMMENCEMENT) OF I SEMESTER OF M. PHARM 2^{ND} YEAR
OCT	02.10.2020	MATHATMA GANDHI JAYANTHI
	17.10.2020	BATHUKAMMA
	19.10.2020	ACADEMIC COMMITTE MEETING
	19.10.2020-24.10.2020	DUSSSEHRA RECESS
	24.10.2020	DURGASTAMI
	30.10.2020	EID MILADUN NABI
NOV	02.11.2020-04.11.2020	END EXAMINATIONS PREPARATION HOLIDAYS PREVIOUS SEMESTERS OF B. PHARM I SEMESTER 2^{ND} ,3^{RD} & 4^{TH} YEARS

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	14.11.2020	CHILDREN'S DAY
	17.11.2020-19.01.2021	2ND SPELL OF INSTRUCTIONS (INCLUDING FIRST MID TERM EXAMINATIONS) OF I SEMESTER OF M. PHARM 2ND YEAR
	18.11.2020-25.11.2020	NATIONAL PHARMACY WEEK
	22.11.2020	TREE PLLANTATION SWATCH BHARAT
	23.11.2020	GENDER SENSITIZATION PROGRAMME
	30.11.2020	KARTHIKA PURNIMA
DEC	01.12.2020	COMMENCEMENT OF B. PHARM I SEMESTER CLASSWORK/ORIENTATION PROGRAMME OF 1ST YEAR WORLD EARTH DAY
	01.12.2020-23.01.2021	1ST SPELL OF INSTRUCTIONS OF I SEMESTER OF B. PHARM 1ST YEAR
	08.12.2020	TELENGANA HARITHAHARAM
	10.12.2020	AWARENESS ON WEB COUNSELLING
	14.12.2020-19.12.2020	FIRST MID TERM EXAMINATIONS OF PHARM-D 2ND ,3RD ,4TH ,5TH& 6TH YEARS
	14.12.2020-19.12.2020	FIRST MID TERM EXAMINATIONS OF I SEMESTER OF M. PHARM 2ND YEAR
	14.12.2020-13.02.2020	FIRST MID TERM EXAMINATIONS OF B. PHARM I SEMESTER 2ND ,3RD & 4TH YEARS
	15.12.2020	AWARENESS OF COVID SAFETY MEASURES
	16.12.2020	COMMENCEMENT OF CLASSWORK/INDUCTION PROGRAMME OF PHARM-D 1ST YEAR
	16.12.2020	COMMENCEMENT OF I SEMESTER CLASSWORK/INDUCTION PROGRAMME OF M. PHARM 1ST YEAR
	16.12.2020-06.03.2021	1ST SPELL OF INSTRUCTONS (INCLUDING DUSSEHRA RECESS, PREVIOUS YEAR END EXAMINATIOINS) OF PHARM-D 1ST YEAR
	16.12.2020-06.02.2021	1ST SPELL OF INSTRUCTIONS OF I SEMESTER OF M. PHARM 1ST YEAR
	18.12.2020	WOMEN'S RIGHTS
	20.12.2020-30.12.2020	ANNUAL DAY CELEBRATIONS
	21.12.2020-20.03.2021	2ND SPELL OF INSTRUCTIONS OF PHARM-D 2ND ,3RD ,4TH ,5TH& 6TH YEARS
	22.03.2021-27.03.2021	SECOND MID TERM EXAMINATIONS OF PHARM-D 2ND ,3RD ,4TH ,5TH& 6TH YEARS
	25.12.2020	CHRISTMAS
	26.12.2020	BOXING DAY
JAN	01.01.2021	NEW YEARS DAY
	06.01.2021	AWARENESS PROGRAMME ON DRUG MENACE
	07.01.2021	PONGAL CELEBRATIONS AND SWATCH BHARATH PROGRAM
	12.01.2021	NATIONAL YOUTH DAY

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	13.01.2021	BHOGI
	14.01.2021	SANKRANTI
	20.01.2021-25.01.2021	SECOND MID TERM EXAMINATIONS OF I SEMESTER OF M. PHARM 2ND YEAR
	22.01.2021	BETI BACHAO BETI PADHAO
	24.01.2021	SAVE GIRL CHILD
	26.01.2021	REPUBLIC DAY
	27.01.2021-30.01.2021	PREPARATION HOLIDAYS OF I SEMESTER OF M. PHARM 2ND YEAR
FEB	01.02.2021-27.03.2021	2ND SPELL OF INSTRUCTIONS OF I SEMESTER OF B. PHARM 1ST YEAR
	01.02.2021-13.02.2021	END I SEMESTER EXAMINATIONS OF M. PHARM 2ND YEAR
	08.02.2021-13.02.2021	FIRST MID TERM EXAMINATIONS OF I SEMESTER OF M. PHARM 1ST YEAR
	10.02.2021	ACADEMIC COMMITTE MEETING OF PHARM-D II SEMESTER OF 1ST YEAR
	15.02.2021-20.02.2021	SECOND MID TERM EXAMINATIONS OF B. PHARM I SEMESTER 2ND ,3RD & 4TH YEARS
	15.02.2021-10.04.2021	2ND SPELL OF INSTRUCTIONS OF I SEMESTER OF 1ST YEAR
	15.02.2021	COMMENCEMENT OF II SEMESTER (PROJECT WORK CONTINUATON) OF M. PHARM 2ND YEAR
	15.02.2021-17.02.2021	PROJECCT WORK REVIEW-II (PHASE-I) OF II SEMESTER OF M. PHARM 2ND YEAR
	12.02.2021	PARENT TEACHER MEETING OF I SEMESTER OF B. PHARM 1ST YEAR
	22.02.2021-27.02.2021	PRACTICAL CLASSES OF B. PHARM I SEMESTER 2ND ,3RD & 4TH YEARS
	24.02.2021	NATIONAL WOMEN'S DAY
MARCH	01.03.2021	REPORT SUBMISSION OF INTERNSHIP IN GENERAL WARAD OF PHARM-D 3RD& 4TH YEARS
	01.03.2021-03.03.2021	PROJECT WORK REVIEW OF II SEMESTER OF M. PHARM 2ND YEAR
	01.03.2021-06.03.2021	PREPARATION HOLIDAYS AND PRACTICAL EXAMINATIONS OF B. PHARM I SEMESTER 2ND ,3RD & 4TH YEARS
	02.03.2021-01.05.2021	COMMENCEMENT OF INTERNSHIP IN SPECIALTY WARD-1 OF PHARM-D 3RD& 4TH YEARS
	08.03.2021	INTERNATIONAL WOMENS DAY
	08.03.2021-13.03.2021	FIRST MID TERM EXAMINATIONS OF PHARM-D 1ST YEAR
	08.03.2021-20.03.2021	END I SEMESTER EXAMINATIONS OF B. PHARM I SEMESTER 2ND ,3RD & 4TH YEARS
	11.03.2021	MAHA SHIVARATRI
	15.03.2021	ACADEMIC COMMITTE MEETING

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	15.03.2021- 05.06.2021	2ND SPELL OF INSTRUCTIONS OF PHARM-D 1ST YEAR
	22.03.2021	COMMENCEMENT OF II SEMESTER CLASSWORK OF B. PHARM 2ND ,3RD & 4TH YEARS
	22.03.2021- 15.05.2021	1ST SPELL OF INSTRUCCTIONS OF II SEMESTER OF B. PHARM 2ND ,3RD & 4TH YEARS
	25.03.2021	BIOADHYAYAN 2021
	29.03.2021	HOLI
	29.03.2021- 06.04.2021	SECOND MID TERM EXAMIINATIONS OF I SEMESTER OF B. PHARM 1ST YEAR
	30.03.2021- 28.06.2021	3RD SPELL OF INSTRUCTIONS (INCLUDING SUMMER VACTIONS) OF PHARM-D 2ND ,3RD ,4TH ,5TH& 6TH YEARS
APRIL	02.04.2021	GOOD FRIDAY
	05.04.2021	BABU JAGJIVAN RAM'S BIRTHDAY
	07.04.2021	WORLD HEALTH DAY
	07.04.2021- 12.04.2021	PREPARATION HOLIDAYS AND PRACTICAL EXAMINATIONS OF B. PHARM I SEMESTER OF 1ST YEAR
	09.04.2021	TRADITONAL DAY
	12.04.2021- 17.04.2021	SECOND MID TERM EXAMINATION OF I SEMESTER OF M. PHARM 1ST YEAR
	13.04.2021	UGADI
	14.04.2021	Dr. AMBEDKAR'S BIRTHDAY
	15.04.2021	GOOD FRIDAY
	15.04.2021- 29.04.2021	END I SEMESTER EXAMINATIONS OF B. PHARM 1ST YEAR
	19.04.2021- 24.04.2021	PRACTICAL CLASSES OF I SEMESTER OF M. PHARM 1ST YEAR
	20.04.2021	WORLD EARTH DAY
	21.04.2021	SRI RAMA NAVAMI
	26.04.2021- 01.05.2021	PREPARATION HOLIDAYS AND PRACTICAL EXAMINATIONS OF I SEMESTER OF M. PHARM 1ST YEAR
	30.04.2021	COMMENCEMENT OF II SEMESTER CLASSWORK OF B. PHARM 1ST YEAR
	30.04.2021- 24.06.2021	1ST SPELL OF INSTRUCTIONS OF II SEMESTER OF B. PHARM 2ND ,3RD & 4TH YEARS
MAY	03.05.2021	REPORT SUBMISSION OF INTERNSHIP IN SPECIALTY WARD-1 OF PHARM-D 3RD& 4TH YEARS
	03.05.2021- 15.05.2021	END I SEMESTER EXAMINATIONS OF M. PHARM 1ST YEAR
	04.05.2021- 03.07.2021	COMMENCEMENT OF INTERNSHIP IN SPECIALTY WARD-2 OF PHARM-D 3RD& 4TH YEARS
	14.05.2021	RAMZAN
	17.05.2021- 29.05.2021	SUMMER VACTIONS OF II SEMESTER OF B. PHARM 2ND ,3RD & 4TH YEARS
	17.05.2021-	1ST SPELL OF INSTRUCTIONS OF II SEMESTER OF M.

AVANTHI INSTITUTE OF PHARMACEUTICAL SCIENCES * ABDULLAPURMET *

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Ranga Reddy Dist.

	10.07.2021	PHARM 1ST YEAR
	17.05.2021	COMMENCEMENT OF II SEMESTER CLASSWORK OF M. PHARM 1ST YEAR
	20.05.2021	BLOOD DONATION CAMP
	28.05.2021	WORLD NUTRITION DAY
	31.05.2021-05.06.2021	FIRST MID TERM EXAMINATIONS OF B. PHARM II SEMESTER OF 2ND ,3RD & 4TH YEARS
JUNE	07.06.2021-12.06.2021	SECOND MID TERM EXAMINATIONS OF PHARM-D 1ST YEAR
	07.06.2021-31.07.2021	2ND SPELL OF INSTRUCTIONS OF B. PHARM II SEMESTER OF 2ND ,3RD & 4TH YEARS
	14.06.2021-04.09.2021	3RD SPELL OF INSTRUCTIONS (INCLUDING SUMMER VACTIONS) OF PHARM-D 1ST YEAR
	25.06.2021-30.06.2021	FIRST MID TERM EXAMINATIONS OF B. PHARM II SEMESTER OF 1ST YEAR
	29.06.2021-03.07.2021	3RD MID TERM EXAMINATIONS OF PHARM-D 2ND ,3RD ,4TH ,5TH& 6TH YEARS
JULY	01.07.2021-25.08.2021	2ND SPELL OF INSTRUCTIONS OF II SEMESTER OF 1ST YEAR
	05.07.2021-17.07.2021	PREPARATION EXAMS AND PRACTICAL EXAMINATIONS OF PHARM-D 2ND ,3RD ,4TH ,5TH& 6TH YEARS
	05.07.2021	REPORT SUBMISSION OF ITERNSHIP IN SPECIALITY WARD-2 OF PHARM-D 3RD& 6TH YEARS
	06.07.2021-04.09.2021	COMMENCEMENT OF INTERNSHIP IN SPECIALITY WARD-3 OF PHARM-D 3RD & 6TH YEARS
	09.07.2021	PARENT- TEACHER MEETING OF II SEMESTER OF B. PHARM 1ST YEAR
	12.07.2021-17.07.2021	FIRST MID TERM EXAMINATIONS OF II SEMESTER OF M. PHARM 1ST YEAR
	12.07.2021-17.07.2021	PROJECT WORK REVIEW-III (PHASE-I) OF II SEMESTER OF M. PHARM 2ND YEAR
	19.07.2021-31.07.2021	END/SUPPLEMENTARY EXAMINATIIONS OF PHARM-D 2ND ,3RD ,4TH ,5TH& 6TH YEARS
	19.07.2021-11.09.2021	2ND SPELL OF INSTRUCTIONS OF II SEMESTER OF M. PHARM 1ST YEAR
	24.07.2021	DATE OF ELIGBILITY OF THESIS SUBMISSION OF M. PHARM II SEMESTER OF 2ND YEAR
AUG	02.08.2021-07.08.2021	SECOND MID TERM EXAMINATIONS OF B. PHARM II SEMESTER OF 2ND ,3RD& 4TH YEARS
	09.08.2021-14.08.2021	PREPARATION HOLIDAYS AND PRACTICAL EXAMINATIONS OF B. PHARM II SEMESTER OF 2ND ,3RD& 4TH YEARS
	15.08.2021	INDEPENDENCE DAY
	16.08.2021-28.08.2021	END II SEMESTER EXAMINATIONS OF B. PHARM 2ND ,3RD& 4TH YEARS
	26.08.2021-	SECOND MID TERM EXAMINATIONS OF B. PHARM II

AVANTHI INSTITUTE OF PHARMACEUTICAL SCIENCES ABDULLAPURMET

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	01.09.2021	SEMESTER OF 1ST YEAR
SEPT	02.09.2021-08.09.2021	PREPARATION HOLIDAYS AND PRACTICAL EXAMINATIONS OF B. PHARM II SEMESTER OF 1ST YEAR
	06.09.2021-11.09.2021	THIRD MID TERM EXAMINATIONS OF PHARM-D 1ST YEAR
	06.09.2021	REPORT SUBMISSION AND INTERNSHIP IN SPECALITY WARD-3 OF PHARM-D 3RD & 6TH YEARS
	08.09.2021	FINAL VIVA OF INTERNSHIP OF PHARM-D 3RD& 6TH YEARS
	09.09.2021-22.09.2021	END II SEMESTER EXAMINATIONS OF B. PHARM 1ST YEAR
	13.09.2021-25.09.2021	PREPARATIION HOLIDAYS AND PRACTICAL EXAMINATIONS OF PHARM-D 1ST YEAR
	13.09.2021-18.09.2021	SECCOND MID TERM EXAMINATIONS OF II SEMESTER OF M. PHARM 1ST YEAR
	20.09.2021-25.09.2021	PREPARATION HOLIDAYS AND PRACTICAL EXAMINATIONS OF M. PHARM II SEMESTER OF 1ST YEAR
	27.09.2021-09.10.2021	END/SUPPLEMENTARY EXAMINATIONS OF PHARM-D 1ST YEAR
	27.09.2021-09.10.2021	END II SEMESTER EXAMINATIONS OF M. PHARM 1ST YEAR

AVANTHI INSTITUTE OF PHARMACEUTICAL SCIENCES * ABDULLAPURMET *

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Ranga Reddy Dist.

DEPARTMENT OF PHARMACY PRACTICE

ACADEMIC CALENDER 2020-2021

PHARM.D I YEAR – V YEAR

DESCRIPTION	I YEAR	II YEAR	III YEAR	IV YEAR	V YEAR
COMMENCEMENT OF CLASSWORK	16.12.2020	01.09.2020	01.09.2020	01.09.2020	01.09.2020
I SPELL OF INSTRUCTION	16.12.2020	01.09.2020	01.09.2020	01.09.2020	01.09.2020
I MID OF EXAMINATION	08.03.2021	14.12.2020	14.12.2020	14.12.2020	14.12.2020
II SPELL OF INSTRUCTION	15.03.2021	21.12.2020	21.12.2020	21.12.2020	21.12.2020
II MID OF EXAMINATION	07.06.2021	22.03.2021	22.03.2021	22.03.2021	22.03.2021
III SPELL OF INSTRUCTION	14.06.2021	30.03.2021	30.03.2021	30.03.2021	30.03.2021
III MID OF EXAMINATION	06.09.2021	29.06.2021	29.06.2021	29.06.2021	29.06.2021
PREPARATION AND PRACTICALS	13.09.2021	05.07.2021	05.07.2021	05.07.2021	05.07.2021
END EXAMINATIONS	27.09.2021	19.07.2021	19.07.2021	19.07.2021	19.07.2021

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Ranga Reddy Dist.

PHARM D VI YEAR

S.NO	DESCRIPTION	VI YEAR
1	COMMENCEMENT OF INTERNSHIP IN GENERAL WARD	01.09.2020
2	REPORT SUBMISSION OF INTERNSHIP IN GENERAL WARD	01.03.2021
3	COMMMENCEMENT OF INTERNSHIP IN SPECIALITY WARD-1	02.03.2021
4	REPORT SUBMISSION OF INTERNSHIP IN SPECIALITY WARD -1	03.05.2021
5	COMMENCEMENT OF INTERNSHIP IN SPECIALITY WARD-2	04.05.2021
6	REPORT SUBMISSION OF INTERNSHIP IN SPECIALITY WARD -2	05.07.2021
7	COMMENCEMENT OF INTERNSHIP IN SPECIALITY WARD-3	06.07.2021
8	REPORT SUBMISSION OF INTERNSHIP IN SPECIALITY WARD -3	06.09.2021
9	FINAL VIVA OF INTERNSHIP	08.09.2021

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Gunthapally (V), Hayath Nagar (M),
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DEPARTMENT OF PHARMACY

ACADEMIC CALENDER 2020-2021

EVENT	I YEAR	
EVENT	SEM-I	SEM-II
COMMENCEMENT OF CLASSWORK	16.12.2020	17.05.2021
I SPELL OF INSTRUCTION	16.12.2020	17.05.2021
I MID OF EXAMINATION	08.02.2021	12.07.2021
II SPELL OF INSTRUCTION	15.02.2021	19.07.2021
II MID OF EXAMINATION	12.04.2021	13.09.2021
PREPARATION AND PRACTICALS	26.04.2021	20.09.2021
END EXAMINATIONS	30.05.2021	27.09.2021

M PHARM I & II YEAR

DESCRIPTION	II YEAR
I SEM	
COMMENCEMENT OF I SEM CLASSWORK	01.09.2020
IST SPELL OF INSTRUCTIONS	01.09.2020
PROJECT WORK REVIEW- 1	29.09.2020
LAST DATE FFOR SUBMISSION OF PRC-1	06.10.2020
I MID OF EXAMINATIONS	14.12.2020
II SPELL OF INSTRUCTIONS	17.11.2020
II MID OF EXAMINATION	20.01.2021
PREPARATION AND PRACTICALS	27.01.2021
END EXAMINATIONS	01.02.2021

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DESCRIPTION	II YEAR
II SEM	
COMMMENCEMENT OF II SEMESTER	15.02.2021
PROJECT WORK REVIEW-II(PHASE-I)	15.02.2021
PROJECT WORK REVIEW-II (PHASE-II)	01.03.2021
LAST DATE FOR SUBMISSION OF PRC-II	06.03.2021
PROJECT WORK REVIEW-III (PHASE-I)	12.07.2021
LAST DATE FOR SUBMISSION OF PROJECT WORK REVIEW-III	24.07.2021
DATE OPF ELIGIBITY OF THESIS SUBMISSION	24.07.2021
SUBMISSION OF THESIS AND PROJECT VIVA VOCE EXAMINATION	-
PROJECT WORK REVIEW-III (PHASE-II)	-
LAST DATE FOR SUBMISSION OF PROJECT WORK REVIEW-III (PHASE-II)	-
SUBMISSION OF THESISAND PROJECT VIVA VOCE EXAMINATION (PHASE-II)	-

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Avanthi's Institute of Pharmaceutical Sciences
Gunthapally (V), Hayath Nagar (M),
Ranga Reddy Dist.

DEPARTMENT OF PHARMACY

ACADEMIC CALENDER 2020-2021

B.PHARMACY

EVENT	I YEAR		II YEAR		III YEAR		IV YEAR	
EVENT	SEM I	SEM II	SEM I	SEM II	SEM I	SEM II	SEM I	SEM II
COMMENCEMENT OF CLASSWORK	01.12.2020	30.04.2021	01.09.2020	22.03.2021	01.09.2020	22.03.2021	01.09.2020	22.03.2021
I SPELL OF INSTRUCTION	01.12.2020	30.04.2021	01.09.2020	22.03.2021	01.09.2020	22.03.2021	01.09.2020	22.03.2021
I MID OF EXAMINATION	25.01.2021	25.06.2021	21.12.2020	31.05.2021	21.12.2020	31.05.2021	21.12.2020	31.05.2021
II SPELL OF INSTRUCTION	01.02.2021	01.07.2021	14.12.2020	07.06.2021	14.12.2020	07.06.2021	14.12.2020	07.06.2021
II MID OF EXAMINATION	29.03.2021	26.08.2021	15.02.2021	02.08.2021	15.02.2021	02.08.2021	15.02.2021	02.08.2021
PREPARATION AND PRACTICALS	07.04.2021	02.09.2021	01.03.2021	09.08.2021	01.03.2021	09.08.2021	01.03.2021	09.08.2021
END EXAMINATIONS	15.04.2021	09.09.2021	08.03.2021	16.08.2021	08.03.2021	16.08.2021	08.03.2021	16.08.2021

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DEPARTMENT OF PHARMACY PRACTICE

A.Y 2020-21 TIME TABLE

PHARM.D VI YEAR W.E.F: 01.09.2020 COLLEGE TIMINGS:9:30AM-3:50PM

DAY	9.30AM-10.20AM	10.20AM-11.10AM	11.10AM-12.00PM	12.00AM-12.50PM	12.50PM-1.20PM	1.20P.M-2.10PM	2.10PM-3.00PM	3.00PM-3.50PM
MON	CARDIOLOGY	NEPHROLOGY	NEUROLOGY	UROLOGY	L	CRITICAL CARE	PULMONORY	CASE PRESENTATION
TUE	PULMONORY	CRITICAL CARE	UROLOGY	NEPHROLOGY	U	NEUROLOGY	CARDIOLOGY	CASE PRESENTATION
WED	CRITICAL CARE	PULMONORY	NEPHROLOGY	CARDIOLOGY	N	UROLOGY	NEUROLOGY	CASE PRESENTATION
THU	UROLOGY	NEUROLOGY	PULMONORY	CRITICAL CARE	C	NEPHROLOGY	CARDIOLOGY	CASE PRESENTATION
FRI	NEUROLOGY	CRITICAL CARE	UROLOGY	PULMONORY	H	CARDIOLOGY	NEPHROLOGY	CASE PRESENTATION
SAT	CARDIOLOGY	NEPHROLOGY	CRITICAL CARE	UROLOGY		PULMONORY	NEUROLOGY	CASE PRESENTATION

Monday	Dr Ravinayak/Dr. Raviprakash	Assistant Professor/ Assistant Professor
Tuesday	Dr. Evangileen/ Dr.P. SWATHI	Assistant Professor/ Assistant Professor
Wednesday	Dr.MD. Abdul Azeem/ Dr. K. Anusha	Assistant Professor/ Assistant Professor
Thursday	Dr Ravinayak/Dr. Raviprakash	Associate Professor
Friday	Dr. Evangileen/ Dr.P. SWATHI	Assistant Professor/ Assistant Professor
Saturday	Dr.MD. Abdul Azeem/ Dr. K. Anusha	Assistant Professor/ Assistant Professor

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DEPARTMENT OF PHARMACY PRACTICE

A.Y 2020-21 TIME TABLE

PHARM.D V YEAR W.E.F: 01.09.2020 COLLEGE TIMINGS:9:30AM-3:50PM

DAY	9.30AM-10.20AM	10.20AM-11.10AM	11.10AM-12.00PM	12.00AM-12.50PM	12.50PM-1.20PM	1.20P.M-2.10PM	2.10PM-3.00PM	3.00PM-3.50PM
MON	CR	P&PE	CPK&PDM	TEST	L	P&PE	SEMINAR	CR
TUE	CR	SEMINAR			U	CPK&PDM	P&PE	TEST
WED	HOSPITALVISIT				N	HOSPITALVISIT		
THU	CPK&PDM	CR	P&PE	CLERKSHIP	C	HOSPITALVISIT		
FRI	HOSPITALVISIT				H	HOSPITALVISIT		
SAT	HOSPITALVISIT					HOSPITALVISIT		

SUBJECTNAME	FACULTYNAME	DESIGNATION
Clinical Research	Dr.P. SWATHI	Assistant Professor
Pharmaco Epidemiology and Pharmaco Economics	Dr. EVANGILEEN	Assistant Professor
Clinical pharmacokinetics & Pharmacotherapeutic drug Monitoring	Dr. Raviprakash	Assistant Professor
Clerkship*	Dr.. RAVINAYAK	Assistant Professor
Project work(six months)	Dr. Raviprakash /Dr. EVANGILEEN/P.SWATHI	Assistant Professor/ Assistant Professor/ Assistant Professor

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DEPARTMENT OF PHARMACY PRACTICE

A.Y 2020-21 TIME TABLE

PHARM.D IV YEAR **W.E.F: 01.09.2020** **COLLEGE TIMINGS:9:30AM-3:50PM**

DAYS	9.30AM-10.20AM	10.20AM-11.10AM	11.10AM-12.00PM	12.00AM-12.50PM	12.50PM-1.20PM	1.20P.M-2.10PM	2.10PM-3.00PM	3.00PM-3.50PM
MON	CT	B&RM	P.THER-III	HP	L	BPK (T)	TEST	CP
TUE	BPK	P.THER-III (T)	CP	TEST	U	B&RM	HP(T)	CT
WED	P.THER-III	SEMINAR			N	HOSPITALVISIT(P.THER-III)		
THU	P.THER-III	HP	HP	CP	C	LIBRARY/SPORTS		
FRI	CP(T)	HOSPITALVISIT			H	HOSPITALVISIT		
SAT	B&RM	BPK				BPK	TEST	CT

SUBJECTNAME	FACULTYNAME	DESIGNATION
Pharmacotherapeutics-III	Dr. Raviprakash	Assistant Professor
Hospital pharmacy	Dr. Ravinayak	Assistant Professor
Clinical pharmacy	Dr. Abdul Azeem	Associate Professor
Biostatistics and Research methodology	Dr. Ayesha/k.Vimala	Assistant Professor
Biopharmaceutics and pharmacokinetics	U. Rishika	Assistant Professor
Clinical toxicology	Dr. P. Swathi	Assistant Professor
Pharmacotherapeutics-III Lab	Dr. Raviprakash	Assistant Professor
Hospital pharmacy Lab	Dr. Ravinayak	Assistant Professor
Clinical pharmacy Lab	Dr.MD. Abdul Azeem	Associate Professor
Biopharmaceutics and pharmacokinetics Lab	I. Swathi	Assistant Professor

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Avanthi's Institute of Pharmaceutical Sciences
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Ranga Reddy Dist.

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DEPARTMENT OF PHARMACY PRACTICE

A.Y 2020-21 TIME TABLE

PHARM.D III YEAR W.E.F: 01.09.2020 COLLEGE TIMINGS:9:30AM-3:50PM

DAYS	9.30AM-10.20AM	10.20AM-11.10AM	11.10AM-12.00PM	12.00AM-12.50PM	12.50PM-1.20PM	1.20P.M-2.10PM	2.10PM-3.00PM	3.00PM-3.50PM
MON	P.A LAB			P.A	L	M.C	P.J	SEMINARS
TUE	M.C LAB			P.THER.–II	U	P.F (T)	P.THER –II	P.COL-II
WED	P.F LAB			P.THER.–II	N	M.C (T)	P.COL-II	P.A
THU	P.A	P.F	P. THER.-II LAB (HOSPITALVIST)		C	P.THER.-II LAB(HOSPITALVISIT)		
FRI	P.COL-II LAB			M.C	H	P.J	P.THER.II (T)	P.COL-II (T)
SAT	P.F	P.J	LIBRARYSPORTS			M.C	P.COL-II	P.A(T)

SUBJECTNAME	FACULTYNAME	DESIGNATION
Pharmacology-II	Dr. Ayesha	Assistant Professor
Pharmaceutical Analysis	Dr. Raviprakash	Assistant Professor
Pharmacotherapeutics-II	Dr. K. Anusha	Assistant Professor
Pharmaceutical Jurisprudence	Dr. Ravinayak	Assistant Professor
Medicinal Chemistry	U. Rishika	Assistant Professor
Pharmaceutical Formulations	P. Srilatha S. Sandhya rani	Assistant Professor/ Assistant Professor
Pharmacology-II	Dr. Ayesha	Assistant Professor
Pharmaceutical Analysis-Lab	Dr. Raviprakash	Assistant Professor
Pharmacotherapeutics-II-Lab	Dr. K. Anusha	Assistant Professor
Medicinal Chemistry-Lab	U. Rishika	Assistant Professor
Pharmaceutical Formulations-Lab	P. Srilatha /S. Sandhya rani	Assistant Professor/ Assistant Professor

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Avanthi's Institute of Pharmaceutical Sciences
Gunthapally (V), Hayath Nagar (M),
Ranga Reddy Dist.

AVANTHI INSTITUTE OF PHARMACEUTICAL SCIENCES
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DEPARTMENT OF PHARMACY PRACTICE

A.Y 2020-21 TIME TABLE

PHARM.D II YEAR W.E.F: 01.09.2020 COLLEGE TIMINGS:9:30AM3:50PM

DAYS	9.30AM-10.20AM	10.20AM-11.10AM	11.10AM-12.00PM	12.00AM-12.50PM	12.5PM-1.20PM	1.20P.M-2.10PM	2.10P M-3.00P M	3.00PM - 3.50PM
MON	P.COL-I	CP	P.PHY.	P.THER.-I	L	LIBRARY/SPORTS		
TUE	P.THER.-I	MICRO	P.PHY	LIBRARY	U	SEMINARS		CP
WED	P.PHY.	MICRO	P.COL-I	MICRO	N	MICRO		
THU	P.COL-I	LIBRARY	P.COG&PHYTO	P.COG& PHYTO	C	P.COG&PHYTO.		
FRI	CP	P.PHY	P.THER.-I(T)	P.COL-I(T)	H	SEMINARS		
SAT	MICRO (BS)	P.THER.-I	P.THER.-ILAB(HOSPITALVISIT)			P.THER.-ILAB (HOSPITAL VISIT)		

Subject Name	Faculty Name	Designation
Pathophysiology	Dr. Raviprakash	Assistant Professor
Pharmaceutical Microbiology	Dr. Ravinayak	Assistant Professor
Pharmacognosy & Phytopharmaceuticals	S.Sandhya rani	Assistant Professor
Pharmacology-I	Dr. Ayeshakhan	Assistant Professor
Community Pharmacy	Dr. P. Swathi	Assistant Professor
Pharmacotherapeutics-I	Dr. K. Anusha	Assistant Professor
PharmaceuticalMicrobiology –Lab	Dr. Ravinayak	Assistant Professor
Pharmacognosy & Phytopharmaceuticals-Lab	S.Sandhya rani	Assistant Professor
Pharmacotherapeutics-I-Lab	Dr. K. Anusha	Assistant Professor

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Avanthi's Institute of Pharmaceutical Sciences
Gunthapally (V), Hayath Nagar (M),
Ranga Reddy Dist.

DEPARTMENT OF PHARMACY PRACICE

A.Y 2020-21 TIME TABLE

PHARM.D I YEAR W.E.F: 16.12.2020 COLLEGE TIMINGS:9:30AM 3:50PM

DAYS	9.30AM-10.20AM	10.20AM-11.10AM	11.10AM-12.00PM	12.00AM-12.50PM	12.50PM-1.20PM	1.20P.M-2.10PM	2.10PM-3.00PM	3.00PM-3.50PM
MON	B.CHEM.	HAP	POC	P.CEU (T)	L	PIC		
TUE	PIC	RM	POC (T)	TEST	U	LIBRARY/SPORTS		
WED	HAP	POC	B.CHEM. (T)	PIC (T)	N	POC		
THU	POC	RM/RB	P. CEU	PIC	C	HAP		
FRI	B.CHEM.	RM/RB	P. CEU	B. CHEM.	H	B.CHEM.		
SAT	HAP	RM/RB	TEST	HAP (T)		P.CEU.		

Subject name	Faculty name	Designation
Human Anatomy And Physiology	Dr. P. Swathi	Assistant Professor
Pharmaceutics	I. Swathi /S. Sandhya rani	Assistant Professor
Medicinal Biochemistry	Dr. MD. Abdul Azeem	Associate Professor
Pharmaceutical Organic Chemistry	U. Rishika	Assistant Professor
Pharmaceutical Inorganic Chemistry	Dr. Ayesha	Assistant Professor
Remedial Mathematics/ Biology	K. Vimala	Assistant Professor
Human Anatomy And Physiology Lab	Dr. P. Swathi	Assistant Professor
Pharmaceutics Lab	I. Swathi /S. Sandhya rani	
Medicinal Biochemistry Lab	Dr. MD. Abdul Azeem	Associate Professor
Pharmaceutical Organic Chemistry Lab	U. Rishika	Assistant Professor
Pharmaceutical Inorganic Chemistry-Lab	Dr. Ayesha	Assistant Professor

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PRINCIPAL
Avanthi Institute of Pharmaceutical Sciences
Gunthapally (V), Hayath Nagar (M),
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PHARM D WORK LOAD 2020-21

S.No	Name of the faculty	Subjects	Class	No of periods	Total Workload	signature
1	MD.ABDUL AZEEM	M.BIO	I YR	7	14	
		CP	IV YR	7		
2	Dr. P. SWATHI PATEL	HAP	I YR	7	17	
		CP	II YR	3		
		CT	IV YR	3		
		CR	V YR	4		
3	Dr. RAVI NAYAK	HP	IV YR	6	16	
		PJ	III YR	2		
		P.MICRO	II YR	7		
		CLERKSHIP	V YR	1		
4	Dr. EMMANUEL EVANGILEEN	P.THER-II	III YR	7	18	
		P.THER-I	II YR	7		
		EPIDEMOLOGY	V YR	4		
5	Dr. RAVIPRAKASH	PATHO	II YR	4	21	
		P.THRER-III	IV YR	7		
		CP&PTDM	V YR	3		
		PA	III YR	7		
6	U. RISHIKA	POC	I YR	7	21	
		MC	III YR	7		
		BPPK	IV YR	7		
7	Dr. AYESHA KHAN	P.COL-I	II YR	7	16	
		PIC	I YR	6		
		BSRM	IV YR	3		
8	I. SWATHI	P.CEUT	I YR	6	20	
		PF	III YR	6		
		P.CEU	II-II(A,B) B.PHARM	8		
9	S. SANDHYA RANI	PF	III YR	6	19	
		P.COG&PHYTO	II YR	7		
		P.CEUT	I YR	6		

AVANTHI INSTITUTE OF PHARMACEUTICAL SCIENCES * ABDULLAPURMET *

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Avanthi's Institute of Pharmaceutical Sciences
Gunthapally (V), Hayath Nagar (M),
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S.No	Name of the faculty	Subjects	Class	No of periods	Total Workload	signature
10	Dr. P.SRILATHA	PF	III YR	6	19	
		P.COG&PHYTO	II YR	7		
		P.CEU	I YR	6		

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Avanthi's Institute of Pharmaceutical Sciences
Gunthapally (V), Hayath Nagar (M),
Ranga Reddy Dist.

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD

(Established by Act No. 30 of 2008)

Kukatpally, Hyderabad, Telangana (India).

ACADEMIC REGULATIONS OF B.PHARM. (REGULAR/FULL TIME) STUDENTS WITH EFFECT FROM THE ACADEMIC YEAR 2017-18 (R-17)

1.0 Under-Graduate Degree Programme in Pharmacy

1.1 JNTUH offers a 4-year (8 semesters) **Bachelor of Pharmacy** (B.Pharm.) degree programme, under Choice Based Credit System (CBCS) at its affiliated colleges with effect from the academic year 2017-18.

2.0 Eligibility for admission

2.1 Admission to the under graduate programme shall be made either on the basis of the merit rank obtained by the qualified candidate in entrance test conducted by the Telangana State Government (EAMCET) or the University or on the basis of any other order of merit approved by the University, subject to reservations as prescribed by the government from time to time.

2.2 The medium of instructions for the entire under graduate programme in Pharmacy will be **English** only.

3.0 B.Pharm. Programme structure

3.1 A student after securing admission shall pursue the under graduate programme in B.Pharm. in a minimum period of **four** academic years (8 semesters), and a maximum period of **eight** academic years (16 semesters) starting from the date of commencement of first year first semester, failing which student shall forfeit seat in B.Pharm course.

A student shall register for all subjects for covering 196 credits and each student shall secure 196 credits (with CGPA $\geq$ 5) required for the completion of the under graduate programme and award of the B.Pharm. degree.

3.2 **UGC/ AICTE** specified definitions/ descriptions are adopted appropriately for various terms and abbreviations used in these academic regulations/ norms, which are listed below.

3.2.1 Semester scheme

Each under graduate programme is of 4 academic years (8 semesters) with the academic year being divided into two semesters of 22 weeks ($\geq$ 90 instructional days) each, each semester shall have - 'Continuous Internal Evaluation (CIE)' and 'Semester End Examination (SEE)'. Choice Based Credit System (CBCS) and Credit Based Semester

System (CBSS) as indicated by UGC and curriculum / course structure as suggested by AICTE are followed.

3.2.2 Credit courses

All subjects/ courses are to be registered by the student in a semester to earn credits which shall be assigned to each subject/ course in an L: T: P: C (lecture periods: tutorial periods: practical periods: credits) structure based on the following general pattern.

- One credit for one hour/ week/ semester for theory/ lecture (L) courses.
- One credit for two hours/ week/ semester for laboratory/ practical (P) courses or tutorials (T).

Courses like environmental science, human values and professional ethics, gender sensitization lab and other student activities like NCC/NSO and NSS are identified as mandatory courses. These courses will not carry any credits.

3.2.3 Subject Course Classification

All subjects/ courses offered for the under graduate programme in Pharmacy (B.Pharm. degree programmes) are broadly classified as follows. The university has followed almost all the guidelines issued by AICTE/UGC.

S. No.	Broad Course Classification	Course Group/ Category	Course Description
1	Foundation Courses (FnC)	BS – Basic Sciences	Includes mathematics, physics and chemistry subjects.
2		PS - Pharmaceutical Sciences	Includes fundamental Pharmacy Subjects.
3		HS – Humanities and Social sciences	Includes subjects related to humanities, social sciences and management.
4	Core Courses (CoC)	PC – Professional Core	Includes core subjects related to the parent discipline.
5	Elective Courses (EℓC)	OE – Open Electives	Includes elective subjects related to inter-disciplinary areas of Pharmacy or other than Pharmacy
6	Core Courses	Project Work	B.Pharm. project or UG project or UG major project
7		Seminar	Seminar/ Colloquium based on core contents related to parent discipline.
10	Minor courses	-	1 or 2 Credit courses (subset of HS)
11	Mandatory Courses (MC)	-	Mandatory courses (non-credit)

AVANTHI INSTITUTE OF PHARMACEUTICAL SCIENCES * ABDULLAPURMET *

PRINCIPAL
Avanthi's Institute of Pharmaceutical Sciences
Gunthapally (V), Hayath Nagar (M),
Ranga Reddy Dist.

4.0 Course registration

4.1 A 'faculty advisor or counselor' shall be assigned to a group of 15 students, who will advise student about the under graduate programme, its course structure and curriculum, choice/option for subjects/ courses, based on their competence, progress, pre-requisites and interest.

4.2 The academic section of the college invites 'registration forms' from students before the beginning of the semester through 'on-line registration', ensuring 'date and time stamping'. The on-line registration requests for any 'current semester' shall be **completed before the commencement of semester end examinations of the 'preceding semester'**.

4.3 A student can apply for **on-line** registration, **only after** obtaining the '**written approval**' from faculty advisor/counselor, which should be submitted to the college academic section through the Head of the Department. A copy of it shall be retained with Head of the Department, faculty advisor/ counselor and the student.

4.4 If the student submits ambiguous choices or multiple options or erroneous entries during **on-line** registration for the subject(s) / course(s) under a given/ specified course group/ category as listed in the course structure, only the first mentioned subject/ course in that category will be taken into consideration.

4.5 Subject/ course options exercised through **on-line** registration are final and **cannot** be changed or inter-changed; further, alternate choices also will not be considered. However, if the subject/ course that has already been listed for registration by the Head of the Department in a semester could not be offered due to any unforeseen or unexpected reasons, then the student shall be allowed to have alternate choice either for a new subject (subject to offering of such a subject), or for another existing subject (subject to availability of seats). Such alternate arrangements will be made by the Head of the Department, with due notification and time-framed schedule, within the **first week** after the commencement of class-work for that semester.

4.6 **Open Electives**: Students have to choose one open elective (OE-I) in II year II semester, one (OE-II) in III year I semester, and one (OE-III) in III year II semester and one (OE-IV) in IV year II semester from the list of Open Electives.

5.0 Subjects/ courses to be offered

5.1 A typical section (or class) strength for each semester shall be 60.

5.2 A subject/ course may be offered to the students, **only if** a minimum of 20 students (1/3 of the section strength) opt for it. The maximum strength of a section is limited to 80 (60 + 1/3 of the section strength).

5.3 If more entries for registration of a subject come into picture, then the Head of Department concerned shall decide, whether or not to offer such a subject/ course for **two (or multiple) sections**.

AVANTHI INSTITUTE OF PHARMACEUTICAL SCIENCES * ABDULLAPURMET *

- PRINCIPAL
Avanthi's Institute of Pharmaceutical Sciences
Gunthapally (V), Hayath Nagar (M),
Ranga Reddy Dist.

6.0 Attendance requirements:

6.1 Attendance in all classes (Lectures/Laboratories/Project Work) is compulsory. The minimum required attendance in aggregate of all the subjects/ courses including the attendance of mid-term examination / Laboratory etc. is 75%. Two periods of attendance for each theory subject shall be considered, if the student appears for the mid-term examination of that subject. A student shall not be permitted to appear for the Semester End Examinations (SEE), if his attendance is less than 75% (excluding attendance in mandatory courses environmental science, human values and professional ethics, gender sensitization Lab, NCC/NSO, NSS and Industrial Training) for that semester.

6.2 Condoning of shortage of attendance (between 65% and 75%) up to a maximum of 10% (considering the days of attendance in sports, games, NCC, NSS activities and Medical grounds) in each semester shall be granted by the College Academic Committee on genuine and valid grounds, based on the student's representation with supporting evidence.

6.3 A stipulated fee shall be payable towards condoning of shortage of attendance.

6.4 Shortage of attendance below 65% in aggregate shall in **no case be condoned**.

6.5 Students whose shortage of attendance is not condoned in any semester are not eligible to take their end examinations of that semester. They get detained and their registration for that semester shall stand cancelled. They will not be promoted to the next semester. They may seek re-registration for all those subjects registered in that semester in which student was detained, by seeking re-admission into that semester as and when offered; in case if there are any open electives, the same may also be re-registered if offered. However, if those electives are not offered in later semesters, then alternate electives may be chosen from the **same** set of elective subjects offered under that category.

6.6 A student fulfilling the attendance requirement in the present semester shall not be eligible for readmission into the same class.

7.0 Academic requirements

The following academic requirements have to be satisfied, in addition to the attendance requirements mentioned in item no.**6.**

7.1 A student shall be deemed to have satisfied the academic requirements and earned the credits allotted to each subject/ course, if student secures not less than 35% marks (26 out of 75 marks) in the semester end examination, and a minimum of 40% of marks in the sum total of the CIE (Continuous Internal Evaluation) and SEE (Semester End Examination) taken together; in terms of letter grades, this implies securing **'C'** grade or above in that subject/ course.

7.2 Promotion Rules

S. No.	Promotion	Conditions to be fulfilled
1	**First year first semester to first year second semester**	**Regular course of study of first year first semester.**

2	**First year second semester to second year first semester**	**(i) Regular course of study of first year second semester.** **(ii) Must have secured at least 24 credits out of 48 credits i.e., 50% of credits up to first year second semester from all the relevant regular and supplementary examinations, whether the student takes those examinations or not.**
3.	**Second year first semester to second year second semester**	**Regular course of study of second year first semester.**
4	**Second year second semester to third year first semester**	**(i) Regular course of study of second year second semester.** **(ii) Must have secured at least 58 credits out of 96 credits i.e., 60% of credits up to second year second semester from all the relevant regular and supplementary examinations, whether the student takes those examinations or not.**
5	**Third year first semester to third year second semester**	**Regular course of study of third year first semester.**
6	**Third year second semester to fourth year first semester**	**(i) Regular course of study of third year second semester.** **(ii) Must have secured at least 86 credits out of 144 credits i.e., 60% of credits up to third year second semester from all the relevant regular and supplementary examinations, whether the student takes those examinations or not.**
7	**Fourth year first semester to fourth year second semester**	**Regular course of study of fourth year first semester.**

7.3 A student shall register for all subjects covering 196 credits as specified and listed in the course structure, fulfills all the attendance and academic requirements for 196 credits, 'earn all 196 credits' by securing SGPA ≥ 5.0 (in each semester) and CGPA (at the end of each successive semester) ≥ 5.0 to successfully complete the under graduate programme.

7.4 After securing the necessary 196 credits as specified for the successful completion of the entire under graduate programme, the student can avail exemption of two subjects up to 6 credits, that is, two open elective subjects for optional drop out from these 196 credits earned; resulting in 190 credits for under graduate programme performance evaluation, i.e., the performance of the student in these 190 credits shall alone be taken into account for the calculation of 'the final CGPA (at the end of under graduate programme, which takes the SGPA of the IV year II semester into account), and shall be indicated in the

grade card of IV year II semester. However, the performance of student in the earlier individual semesters, with the corresponding SGPA and CGPA for which grade cards have already been given will not be altered.

7.5 If a student registers for some more **'extra subjects'** other than those listed subjects totaling to 196 credits as specified in the course structure, the performances in those **'extra subjects'** (although evaluated and graded using the same procedure as that of the required 196 credits) will not be taken into account while calculating the SGPA and CGPA. For such **'extra subjects'** registered, % of marks and letter grade alone will be indicated in the grade card as a performance measure, subject to completion of the attendance and academic requirements as stated in regulations 6 and 7.1 – 7.4 above.

7.6 A student eligible to appear in the end semester examination for any subject/ course, but absent from it or failed (thereby failing to secure **'C'** grade or above) may reappear for that subject/ course in the supplementary examination as and when conducted. In such cases, CIE assessed earlier for that subject/ course will be carried over, and added to the marks to be obtained in the SEE supplementary examination for evaluating performance in that subject.

7.7 A student **detained in a semester due to shortage of attendance, may be re-admitted when the same semester is offered in the next academic year for fulfillment of academic requirements**. The academic regulations under which student has been readmitted shall be applicable. However, no grade allotments or SGPA/ CGPA calculations will be done for the entire semester in which student has been detained.

7.8 A student detained **due to lack of credits, shall be promoted to the next academic year only after acquiring the required academic credits.** The academic regulations under which student has been readmitted shall be applicable to him.

Note: (1) The SGPA will be computed and printed on the marks memo only if the candidate passes in all the subjects offered and gets minimum B grade in all the subjects.

(2) CGPA is calculated only when the candidate passes in all the subjects offered in all the semesters.

8.0 Evaluation - Distribution and Weightage of marks

8.1 The performance of a student in every subject/course (including practicals and UG major project) will be evaluated for 100 marks each, with 25 marks allotted for CIE (Continuous Internal Evaluation) and 75 marks for SEE (Semester End-Examination).

8.2 For theory subjects, during a semester, there shall be two mid-term examinations. Each mid-term examination consists of one objective paper, one descriptive paper and one assignment. The objective paper and the essay paper shall be for 10 marks each with a total duration of 1 hour 20 minutes (20 minutes for objective and 60 minutes for essay paper). The objective paper is set with 20 bits of multiple choice, fill-in the blanks and matching type of questions for a total of 10 marks. The essay paper shall contain 4 full

questions out of which, the student has to answer 2 questions, each carrying 5 marks. While the first mid-term examination shall be conducted on 50% of the syllabus, the second mid-term examination shall be conducted on the remaining 50% of the syllabus. Five marks are allocated for assignments (as specified by the subject teacher concerned). The first assignment should be submitted before the conduct of the first mid-examination, and the second assignment should be submitted before the conduct of the second mid-examination. The total marks secured by the student in each mid-term examination are evaluated for 25 marks, and the average of the two mid-term examinations shall be taken as the final marks secured by each student in internals/sessionals. If any student is absent from any subject of a mid-term examination, an on-line test will be conducted for him by the university. The details of the question paper pattern are as follows,

- The end semester examinations will be conducted for 75 marks consisting of two parts viz. i) **Part- A** for 25 marks, ii) **Part - B** for 50 marks.
- Part-A is compulsory question which consists of ten sub-questions. The first five sub-questions are from each unit and carry 2 marks each. The next five sub-questions are one from each unit and carry 3 marks each.
- Part-B consists of five questions (numbered from 2 to 6) carrying 10 marks each. Each of these questions is from one unit and may contain sub-questions. For each question there will be an "either" "or" choice, which means that there will be two questions from each unit and the student should answer either of the two questions.

8.3 For practical subjects there shall be a continuous internal evaluation during the semester for 25 sessional marks and 75 semester end examination marks. Out of the 25 marks for internal evaluation, day-to-day work in the laboratory shall be evaluated for 15 marks and internal practical examination shall be evaluated for 10 marks conducted by the laboratory teacher concerned. The semester end examination shall be conducted with an external examiner and the laboratory teacher. The external examiner shall be appointed from the clusters of colleges which are decided by the examination branch of the university.

8.4 There shall be an Industrial Training in IV year I semester. For the Industrial Training, the student shall be required to work for at least 150 hours spread over four weeks in a Pharmaceutical Industry/Hospital. It includes Production unit, Quality Control department, Quality Assurance department, Analytical laboratory, Chemical manufacturing unit, Pharmaceutical R&D, Hospital (Clinical Pharmacy), Clinical Research Organization, Community Pharmacy, etc. After the IV year I semester and before the commencement of IV year II semester, the student shall submit satisfactory report of the work and certificate duly signed by the authority of training organization to the head of the institute.

8.5 **Practice School:** In the IV year I semester, every candidate shall undergo a practice school for a period of 150 hours evenly distributed throughout the semester. The student

shall opt any one of the domains for practice school declared by the departmental committee from time to time. At the end of the practice school, every student shall submit a printed report (in triplicate) on the practice school he/she attended (not more than 25 pages). The report shall be submitted to the departmental committee consisting of Head of the Institution, Head of the Department and a senior faculty member. The practice school report shall be evaluated for 100 marks and grade point shall be awarded.

8.6 Out of a total of 100 marks for the UG major project, 25 marks shall be allotted for internal evaluation and 75 marks for the end semester examination (viva voce). The end semester examination of the project work shall be conducted by a committee consisting of external examiner, Head of the Department, supervisor of the project and a senior faculty member. The evaluation of UG major project shall be made at the end of IV year II semester. The internal evaluation shall be on the basis of two seminars given by each student on the topic of UG major project.

8.7 The laboratory marks and the sessional marks awarded by the college are subject to scrutiny and scaling by the university wherever necessary. In such cases, the sessional and laboratory marks awarded by the college will be referred to a committee. The committee will arrive at a scaling factor and the marks will be scaled accordingly. The recommendations of the committee are final and binding. The laboratory records and internal test papers shall be preserved in the respective institutions as per the university rules and produced before the committees of the university as and when asked for.

8.8 For mandatory courses environmental science, human values and professional ethics, gender sensitization lab and Industrial Training a student has to secure 40 marks out of 100 marks (i.e. 40% of the marks allotted) in the continuous internal evaluation for passing the subject/course.

8.9 For mandatory courses NCC/ NSO and NSS, a 'satisfactory participation certificate' shall be issued to the student from the authorities concerned, only after securing ≥ 65% attendance in such a course.

8.10 No marks or letter grade shall be allotted for all mandatory/non-credit courses.

9.0 Grading procedure

9.1 Marks will be awarded to indicate the performance of student in each theory subject, laboratory / practicals and UG major project. Based on the percentage of marks obtained (Continuous Internal Evaluation plus Semester End Examination, both taken together) as specified in item 8 above, a corresponding letter grade shall be given.

9.2 As a measure of the performance of student, a 10-point absolute grading system using the following letter grades (as per UGC/AICTE guidelines) and corresponding percentage of marks shall be followed:

% of Marks Secured in a Subject/Course (Class Intervals)	Letter Grade (UGC Guidelines)	Grade Points
Greater than or equal to 90%	O (Outstanding)	10

80 and less than 90%	**A^+ (Excellent)**	**9**
70 and less than 80%	**A (Very Good)**	**8**
60 and less than 70%	**B^+ (Good)**	**7**
50 and less than 60%	**B (Average)**	**6**
40 and less than 50%	**C (Pass)**	**5**
Below 40%	**F (FAIL)**	**0**
Absent	**Ab**	**0**

9.3 A student obtaining **'F'** grade in any subject shall be deemed to have **'failed'** and is required to reappear as a 'supplementary student' in the semester end examination, as and when offered. In such cases, internal marks in those subjects will remain the same as those obtained earlier.

9.4 A student who has not appeared for examination in any subject, **'Ab'** grade will be allocated in that subject, and student shall be considered **'failed'**. Student will be required to reappear as a 'supplementary student' in the semester end examination, as and when offered.

9.5 A letter grade does not indicate any specific percentage of marks secured by the student, but it indicates only the range of percentage of marks.

9.6 A student earns grade point (GP) in each subject/ course, on the basis of the letter grade secured in that subject/ course. The corresponding 'credit points' (CP) are computed by multiplying the grade point with credits for that particular subject/ course.

Credit points (CP) = grade point (GP) x credits .... For a course

9.7 The student passes the subject/ course only when **GP ≥ 5 ('C' grade or above)**

9.8 The semester grade point average (SGPA) is calculated by dividing the sum of credit points (ΣCP) secured from all subjects/ courses registered in a semester, by the total number of credits registered during that semester. SGPA is rounded off to **two** decimal places. SGPA is thus computed as

$$\textbf{SGPA} = \{ \textstyle\sum_{i=1}^{N} C_i \, G_i \} / \{ \sum_{i=1}^{N} C_i \} \text{ .... For each semester,}$$

where 'i' is the subject indicator index (takes into account all subjects in a semester), 'N' is the no. of subjects **'registered'** for the semester (as specifically required and listed under the course structure of the parent department), C_i is the no. of credits allotted to the i^{th} subject, and G_i represents the grade points (GP) corresponding to the letter grade awarded for that i^{th} subject.

9.9 The cumulative grade point average (CGPA) is a measure of the overall cumulative performance of a student in all semesters considered for registration. The CGPA is the ratio of the total credit points secured by a student in **all** registered courses in **all** semesters, and the total number of credits registered in **all** the semesters. CGPA is rounded off to **two** decimal places. CGPA is thus computed from the I year II semester onwards at the end of each semester as per the formula

$$\textbf{CGPA} = \{ \textstyle\sum_{j=1}^{M} C_j \, G_j \} / \{ \sum_{j=1}^{M} C_j \} \text{ ... for all S semesters registered}$$

(i.e., up to and inclusive of S semesters, S ≥ 2),

where **'M'** is the **total** no. of subjects the student has **'registered'** i.e., from the 1st semester onwards up to and inclusive of the 8th semester, 'j' is the subject indicator index (takes into account all subjects from 1 to 8 semesters), C_j is the no. of credits allotted to the j^{th} subject, and G_j represents the grade points (GP) corresponding to the letter grade awarded for that j^{th} subject. After registration and completion of first year first semester, the SGPA of that semester itself may be taken as the CGPA, as there are no cumulative effects.

Illustration of calculation of SGPA

Course/Subject	Credits	Letter Grade	Grade Points	Credit Points
Course 1	4	A	8	4 x 8 = 32
Course 2	4	O	10	4 x 10 = 40
Course 3	4	C	5	4 x 5 = 20
Course 4	3	B	6	3 x 6 = 18
Course 5	3	A+	9	3 x 9 = 27
Course 6	3	C	5	3 x 5 = 15
	Total Credits = 21			Total Credit Points = 152

SGPA = 152/21 = 7.24

Illustration of calculation of CGPA

Course/Subject	Credits	Letter Grade	Grade Points	Credit Points
I Year I Semester				
Course 1	4	A	8	4 x 8 = 32
Course 2	4	A+	9	4 x 9 = 36
Course 3	4	B	6	4 x 6 = 24
Course 4	3	O	10	3 x 10 = 30
Course 5	3	B+	7	3 x 7 = 21
Course 6	3	A	8	3 x 8 = 24
I Year II Semester				
Course 7	4	B+	7	4 x 7 = 28
Course 8	4	O	10	4 x 10 = 40
Course 9	4	A	8	4 x 8 = 32
Course 10	3	B	6	3 x 6 = 18
Course 11	3	C	5	3 x 5 = 15
Course 12	3	A+	9	3 x 9 = 27
	Total Credits = 42			Total Credit Points = 327

CGPA = 327/42 = 7.79

9.10 For merit ranking or comparison purposes or any other listing, **only** the **'rounded off'** values of the CGPAs will be used.

9.11 For calculations listed in regulations 9.6 to 9.9, performance in failed subjects/ courses (securing **F** grade) will also be taken into account, and the credits of such subjects/ courses will also be included in the multiplications and summations. After passing the failed subject(s) newly secured letter grades will be taken into account for calculation of SGPA and CGPA. However, mandatory courses will not be taken into consideration.

10.0 Passing standards

10.1 A student shall be declared successful or 'passed' in a semester, if student secures a GP≥5 ('C' grade or above) in every subject/course in that semester (i.e. when student gets an SGPA ≥ 5.00 at the end of that particular semester); and a student shall be declared successful or 'passed' in the entire under graduate programme, only when gets a CGPA≥5.00 for the award of the degree as required.

10.2 After the completion of each semester, a grade card or grade sheet (or transcript) shall be issued to all the registered students of that semester, indicating the letter grades and credits earned. It will show the details of the courses registered (course code, title, no. of credits, and grade earned etc.), credits earned, SGPA, and CGPA.

11.0 Declaration of results

11.1 Computation of SGPA and CGPA are done using the procedure listed in 9.6 to 9.9.

11.2 For final percentage of marks equivalent to the computed final CGPA, the following formula may be used.

% of Marks = (final CGPA – 0.5) x 10

12.0 Award of degree

12.1 A student who registers for all the specified subjects/ courses as listed in the course structure and secures the required number of 196 credits (with CGPA ≥ 5.0), within 8 academic years from the date of commencement of the first academic year, shall be declared to have **'qualified'** for the award of the B.Pharm. degree.

12.2 A student who qualifies for the award of the degree as listed in item 12.1 shall be placed in the following classes.

12.3 Students with final CGPA (at the end of the under graduate programme) ≥ 8.00, and fulfilling the following conditions -

(i) Should have passed all the subjects/courses in **'first appearance'** within the first 4 academic years (or 8 sequential semesters) from the date of commencement of first year first semester.

(ii) Should have secured a CGPA ≥ 8.00, at the end of each of the 8 sequential semesters, starting from first year first semester onwards.

- PRINCIPAL
Avanthi's Institute of Pharmaceutical Sciences
Gunthapally (V), Hayath Nagar (M),
Ranga Reddy Dist.

(iii) Should not have been detained or prevented from writing the end semester examinations in any semester due to shortage of attendance or any other reason, shall be placed in **'first class with distinction'**.

12.4 Students with final CGPA (at the end of the under graduate programme) ≥ 6.50 but < 8.00, shall be placed in **'first class'**.

12.5 Students with final CGPA (at the end of the under graduate programme) ≥ 5.50 but < 6.50, shall be placed in **'second class'**.

12.6 All other students who qualify for the award of the degree (as per item 12.1), with final CGPA (at the end of the under graduate programme) ≥ 5.00 but < 5.50, shall be placed in **'pass class'**.

12.7 A student with final CGPA (at the end of the under graduate programme) < 5.00 will not be eligible for the award of the degree.

12.8 Students fulfilling the conditions listed under item 12.3 alone will be eligible for award of **'university rank'** and **'gold medal'**.

13.0 Withholding of results

13.1 If the student has not paid the fees to the university/ college at any stage, or has dues pending due to any reason whatsoever, or if any case of indiscipline is pending, the result of the student may be withheld, and student will not be allowed to go into the next higher semester. The award or issue of the degree may also be withheld in such cases.

14.0 Transitory regulations

A. **For students detained due to shortage of attendance**:

1. A Student who has been detained in I year of R09/R13/R15/R16 Regulations due to lack of attendance, shall be permitted to join I year I Semester of R17 Regulations and he is required to complete the study of B. Pharmacy programme within the stipulated period of eight academic years from the date of first admission in I Year.
2. A student who has been detained in any semester of II, III and IV years of R09/R13/R15/ R16 regulations for want of attendance, shall be permitted to join the corresponding semester of R17 regulations and is required to complete the study of B. Pharmacy within the stipulated period of eight academic years from the date of first admission in I Year. The R17 Academic Regulations under which a student has been readmitted shall be applicable to that student from that semester.

   See rule (C) for further Transitory Regulations.

B. **For students detained due to shortage of credits**:

3. A student of R09/R13/R15/R16 Regulations who has been detained due to lack of credits, shall be promoted to the next semester of R17 Regulations only after acquiring the required credits as per the corresponding regulations of his/her first admission. The student is required to complete the study of B. Pharmacy within the stipulated period of

eight academic years from the year of first admission. The R17 Academic Regulations are applicable to a student from the year of readmission onwards.

See rule (C) for further Transitory Regulations.

C. **For readmitted students in R17 Regulations**:

4. A student who has failed in any subject under any regulation has to pass those subjects in the same regulations.

5. The maximum credits that a student acquires for the award of degree, shall be the sum of the total number of credits secured in all the regulations of his/her study including R17 Regulations. The performance evaluation of the student will be done after the exemption of two subjects if total credits acquired are ≤ 206, three subjects if total credits acquired are > 206 (see R17 Regulations for exemption details).

6. If a student readmitted to R17 Regulations, has any subject with 80% of syllabus common with his/her previous regulations, that particular subject in R17 Regulations will be substituted by another subject to be suggested by the University.

Note: If a student readmitted to R17 Regulations, has not studied any subjects/topics in his/her earlier regulations of study which is prerequisite for further subjects in R17 Regulations, the College Principals concerned shall conduct remedial classes to cover those subjects/topics for the benefit of the students.

15.0 Student transfers

15.1 There shall be no branch transfers after the completion of admission process.

15.2 There shall be no transfers from one college/stream to another within the constituent colleges and units of Jawaharlal Nehru Technological University Hyderabad.

15.3 The students seeking transfer to colleges affiliated to JNTUH from various other Universities/institutions have to pass the failed subjects which are equivalent to the subjects of JNTUH, and also pass the subjects of JNTUH which the students have not studied at the earlier institution. Further, though the students have passed some of the subjects at the earlier institutions, if the same subjects are prescribed in different semesters of JNTUH, the students have to study those subjects in JNTUH in spite of the fact that those subjects are repeated.

15.4 The transferred students from other Universities/institutions to JNTUH affiliated colleges who are on rolls to be provide one chance to write the CBT (internal marks) in the **failed subjects and/or subjects not studied** as per the clearance letter issued by the university.

15.5 The autonomous affiliated colleges have to provide one chance to write the internal examinations in the **failed subjects and/or subjects not studied,** to the students transferred from other universities/institutions to JNTUH autonomous affiliated colleges who are on rolls, as per the clearance (equivalence) letter issued by the University.

PRINCIPAL
Avanthi's Institute of Pharmaceutical Sciences
Gunthapally (V), Hayath Nagar (M),
Ranga Reddy Dist.

16.0 Scope

16.1 The academic regulations should be read as a whole, for the purpose of any interpretation.

16.2 In case of any doubt or ambiguity in the interpretation of the above rules, the decision of the Vice-Chancellor is final.

16.3 The university may change or amend the academic regulations, course structure or syllabi at any time, and the changes or amendments made shall be applicable to all students with effect from the date notified by the university authorities.

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD

(Established by Act No. 30 of 2008)

Kukatpally, Hyderabad, Telangana (India).

Academic Regulations for B.Pharm. (Lateral Entry Scheme) w.e.f the AY 2018-19

1. Eligibility for award of B. Pharm. Degree (LES)

The LES students after securing admission shall pursue a course of study for not less than three academic years and not more than six academic years.

2. The student shall register for 147 credits and secure 147 credits with CGPA ≥ 5 from II year to IV year B.Pharm. programme (LES) for the award of B.Pharm. degree. **Out of the 147 credits secured, the student can avail exemption up to 6 credits**, that is, two open elective subjects resulting in 141 credits for B.Pharm programme performance evaluation.

3. The students, who fail to fulfil the requirement for the award of the degree in six academic years from the year of admission, shall forfeit their seat in B.Pharm.

4. The attendance requirements of B. Pharm. (Regular) shall be applicable to B.Pharm. (LES).

5. Promotion rule

S. No	Promotion	Conditions to be fulfilled
1	Second year first semester to second year second semester	Regular course of study of second year first semester.
2	Second year second semester to third year first semester	(i) Regular course of study of second year second semester. (ii) Must have secured at least 29 credits out of 48 credits i.e., 60% of credits up

		to second year second semester from all the relevant regular and supplementary examinations, whether the student takes those examinations or not.
3	**Third year first semester to third year second semester**	**Regular course of study of third year first semester.**
4	**Third year second semester to fourth year first semester**	**(i) Regular course of study of third year second semester.** **(ii) Must have secured at least 58 credits out of 96 credits i.e., 60% of credits up to third year second semester from all the relevant regular and supplementary examinations, whether the student takes those examinations or not.**
5	**Fourth year first semester to fourth year second semester**	**Regular course of study of fourth year first semester.**

6. All the other regulations as applicable to B. Pharm. 4-year degree course (Regular) will hold good for B. Pharm. (Lateral Entry Scheme).

MALPRACTICES RULES

DISCIPLINARY ACTION FOR / IMPROPER CONDUCT IN EXAMINATIONS

	Nature of Malpractice/Improper conduct	Punishment
	If the student:	
1. (a)	Possesses or keeps accessible in examination hall, any paper, note book, programmable calculators, cell phones, pager, palm computers or any other form of material concerned with or related to the subject of the examination (theory or practical) in which student is appearing but has not made use of (material shall include any marks on the body of the student which can be used as an aid in the subject of the examination)	Expulsion from the examination hall and cancellation of the performance in that subject only.
(b)	Gives assistance or guidance or receives it from any other student orally or by any other body language methods or	Expulsion from the examination hall and cancellation of the performance in that subject only of all the students involved. In case of an

	communicates through cell phones with any student or persons in or outside the exam hall in respect of any matter.	outsider, he will be handed over to the police and a case is registered against him.
2.	Has copied in the examination hall from any paper, book, programmable calculators, palm computers or any other form of material relevant to the subject of the examination (theory or practical) in which the student is appearing.	Expulsion from the examination hall and cancellation of the performance in that subject and all other subjects the student has already appeared including practical examinations and UG major project and shall not be permitted to appear for the remaining examinations of the subjects of that semester/year. The hall ticket of the student is to be cancelled and sent to the university.
3.	Impersonates any other student in connection with the examination.	The student who has impersonated shall be expelled from examination hall. The student is also debarred and forfeits the seat. The performance of the original student who has been impersonated, shall be cancelled in all the subjects of the examination (including practicals and UG major project) already appeared and shall not be allowed to appear for examinations of the remaining subjects of that semester/year. The student is also debarred for two consecutive semesters from class work and all university examinations. The continuation of the course by the student is subject to the academic regulations in connection with forfeiture of seat. If the imposter is an outsider, he will be handed over to the police and a case is registered against him.
4.	Smuggles in the answer book or additional sheet or takes out or arranges to send out the question paper during the examination or answer book or additional sheet, during or after the examination.	Expulsion from the examination hall and cancellation of performance in that subject and all the other subjects the student has already appeared including practical examinations and UG major project and shall not be permitted for the remaining examinations of the subjects of that semester/year. The student is also debarred for two consecutive semesters from class work and all university examinations. The continuation of the course by the student is subject to the academic regulations in connection with forfeiture of seat.
5.	Uses objectionable, abusive or offensive language in the answer paper or in letters to the examiners or writes to the examiner requesting him to award pass marks.	Cancellation of the performance in that subject.

6.	Refuses to obey the orders of the chief superintendent/assistant – superintendent / any officer on duty or misbehaves or creates disturbance of any kind in and around the examination hall or organizes a walk out or instigates others to walk out, or threatens the officer-in charge or any person on duty in or outside the examination hall of any injury to his person or to any of his relations whether by words, either spoken or written or by signs or by visible representation, assaults the officer-in-charge, or any person on duty in or outside the examination hall or any of his relations, or indulges in any other act of misconduct or mischief which result in damage to or destruction of property in the examination hall or any part of the college campus or engages in any other act which in the opinion of the officer on duty amounts to use of unfair means or misconduct or has the tendency to disrupt the orderly conduct of the examination.	In case of students of the college, they shall be expelled from examination halls and cancellation of their performance in that subject and all other subjects the student(s) has (have) already appeared and shall not be permitted to appear for the remaining examinations of the subjects of that semester/year. The students also are debarred and forfeit their seats. In case of outsiders, they will be handed over to the police and a police case is registered against them.
7.	Leaves the exam hall taking away answer script or intentionally tears of the script or any part thereof inside or outside the examination hall.	Expulsion from the examination hall and cancellation of performance in that subject and all the other subjects the student has already appeared including practical examinations and UG major project and shall not be permitted for the remaining examinations of the subjects of that semester/year. The student is also debarred for two consecutive semesters from class work and all university examinations. The continuation of the course by the student is subject to the academic regulations in connection with forfeiture of seat.
8.	Possess any lethal weapon or firearm in the examination hall.	Expulsion from the examination hall and cancellation of the performance in that subject and all other subjects the student has already appeared including practical examinations and UG major project and shall not be permitted for the remaining examinations of the subjects of that semester/year. The student is also debarred and forfeits the seat.
9.	If student of the college, who is not a student for the particular examination or	Student of the colleges expulsion from the examination hall and cancellation of the

	any person not connected with the college indulges in any malpractice or improper conduct mentioned in clause 6 to 8.	performance in that subject and all other subjects the student has already appeared including practical examinations and UG major project and shall not be permitted for the remaining examinations of the subjects of that semester/year. The student is also debarred and forfeits the seat. Person(s) who do not belong to the college will be handed over to police and, a police case will be registered against them.
10.	Comes in a drunken condition to the examination hall.	Expulsion from the examination hall and cancellation of the performance in that subject and all other subjects the student has already appeared including practical examinations and UG major project and shall not be permitted for the remaining examinations of the subjects of that semester/year.
11.	Copying detected on the basis of internal evidence, such as, during valuation or during special scrutiny.	Cancellation of the performance in that subject and all other subjects the student has appeared including practical examinations and UG major project of that semester/year examinations.
12.	If any malpractice is detected which is not covered in the above clauses 1 to 11 shall be reported to the university for further action to award suitable punishment.	

Malpractices identified by squad or special invigilators

1. Punishments to the students as per the above guidelines.
2. Punishment for institutions : (if the squad reports that the college is also involved in encouraging malpractices)
   a. A show cause notice shall be issued to the college.
   b. Impose a suitable fine on the college.
   c. Shifting the examination centre from the college to another college for a specific period of not less than one year.

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JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD
(Established by Act No.30 of 2008)
Kukatpally, Hyderabad–500085, Telangana State (India)

Academic Regulations of M.Pharm. (Regular/Full Time) Programmes, 2019-20 (R19)
(CBCS)
(Effective for the students admitted into I year from the Academic Year 2019-20 and onwards)

1.0 **Post-Graduate Degree Programmes in Pharmacy (PGP in Pharmacy)** Jawaharlal Nehru Technological University Hyderabad (JNTUH) offers **Two** Years (**Four** Semesters) full-time Master of Pharmacy (M.Pharm.) Degree programmes, under Choice Based Credit System (CBCS) at its constituent (non-autonomous) and affiliated colleges in different specializations.

2.0 **Eligibility for Admissions**

2.1 Admission to the PGPs shall be made subject to eligibility, qualification and specializations prescribed by the University from time to time, for each specialization under each M.Pharm. programme.

2.2 Admission to the post graduate programme shall be made on the basis of either the merit rank or Percentile obtained by the qualified student in the relevant qualifying GPAT Examination/ the merit rank obtained by the qualified student in an entrance test conducted by Telangana State Government (PGECET) for M.Pharm. programmes / an entrance test conducted by JNTUH/ on the basis of any other exams approved by the University, subject to reservations as laid down by the Govt. from time to time.

2.3 The medium of instructions for all PG Programmes will be **ENGLISH** only.

3.0 **M.Pharm. Programme (PGP in Pharmacy) Structure**

3.1 The M.Pharm. Programmes in Pharmacy of JNTUH are of Semester pattern, with **Four** Semesters consisting of **Two** academic years, each academic year having **Two** Semesters (First/Odd and Second/Even Semesters). Each Semester shall be of 22 weeks duration (inclusive of Examinations), with a minimum of 90 instructional days per Semester.

3.2 The student shall not take more than four academic years to fulfill all the academic requirements for the award of M.Pharm. degree from the date of commencement of first year first semester, failing which the student shall forfeit the seat in M.Pharm. programme.

3.3 **UGC/AICTE** specified definitions/descriptions are adopted appropriately for various terms and abbreviations used in these PG academic regulations, as listed below:

3.3.1 **Semester Scheme**

Each Semester shall have 'Continuous Internal Evaluation (CIE)' and 'Semester End Examination (SEE)'. Choice Based Credit System (CBCS) and Credit Based Semester System (CBSS) are taken as 'references' for the present set of Regulations. The terms 'SUBJECT' and 'COURSE' imply the same meaning here and refer to 'Theory Subject', or 'Lab Course', or 'Design/Drawing Subject', or 'Mini Project with Seminar', or 'Dissertation', as the case may be.

3.3.2 **Credit Courses**

All subjects/courses are to be registered by the student in a semester to earn credits which shall be assigned to each subject/course in an L: T: P: C (Lecture Periods: Tutorial Periods: Practical Periods: Credits) structure based on the following general pattern:

- One credit for one hour/week/semester for theory/lecture (L) courses
- One credit for two hours/ week/semester for laboratory/ practical (P) courses or tutorials (T)

Other student activities like study tour, guest lecture, conference/workshop participations, technical paper presentations and mandatory courses (***Audit Courses***) will not carry any credits.

3.3.3 Subject Course Classification

All subjects/courses offered for the Post-Graduate Programme in Pharmacy (M.Pharm. Degree Programme) are broadly classified as follows. The University has followed in general the guidelines issued by AICTE/UGC.

S.No.	Broad Course Classification	Course Group/ Category	Course Description
1	Core Courses (CoC)	PC- Professional Core	Includes subjects related to the Specialization in Pharmacy
		Dissertation	M.Pharm. Project or PG Project or Major Project
		Mini Project with Seminar	Seminar based on core contents related to the Specialization in Pharmacy
2	Elective Courses (EIE)	PE - Professional Electives	Includes elective subjects related to the Specialization in Pharmacy
		OE - Open Electives	Elective subjects which include inter-disciplinary subjects or subjects in an area outside the Specialization in Pharmacy
3	***Mandatory Courses***	--	***Non-Credit Audit Courses***

4.0 Course Registration

4.1 A 'Faculty Advisor or Counselor' shall be assigned to each specialization, who will advise on the Post Graduate Programme (PGP), its Course Structure and Curriculum, Choice/Option for Subjects/ Courses, based on his competence, progress, pre-requisites and interest.

4.2 The Academic Section of the College invites 'Registration Forms' from students within 15 days from the commencement of class work through 'ON-LINE SUBMISSIONS', ensuring 'DATE and TIME Stamping'. The ON-LINE Registration Requests for any 'CURRENT SEMESTER' shall be completed BEFORE the commencement of SEEs (Semester End Examinations) of the 'PRECEDING SEMESTER'.

4.3 A Student can apply for ON-LINE Registration, ONLY AFTER obtaining the 'WRITTEN APPROVAL' from his Faculty Advisor, which should be submitted to the College Academic Section through the Head of Department (a copy of it being retained with Head of Department, Faculty Advisor and the Student).

4.4 If the Student submits ambiguous choices or multiple options or erroneous entries during ON-LINE Registration for the Subject(s) / Course(s) under a given/ specified Course Group/ Category as listed in the Course Structure, only the first mentioned Subject/ Course in that Category will be taken into consideration.

4.5 Subject/ Course Options exercised through ON-LINE Registration are final and CANNOT be changed, nor can they be inter-changed; further, alternate choices also will not be considered. However, if the Subject/ Course that has already been listed for Registration by the University in a Semester could not be offered due to unforeseen or unexpected reasons, then the Student will be allowed to have alternate

choice either for a new Subject, if it is offered, or for another existing Subject (subject to availability of seats). Such alternate arrangements will be made by the Head of Department, with due notification and time-framed schedule, within the FIRST WEEK from the commencement of Class-work for that Semester.

5.0 Attendance Requirements

The programmes are offered based on a unit system with each subject being considered a unit. Attendance is calculated separately for each subject.

5.1 Attendance in all classes (Lectures/Laboratories) is compulsory. The minimum required attendance in each theory subject (***also mandatory(audit) courses***) including the attendance of mid-term examination / Laboratory etc. is 75%. Two periods of attendance for each theory subject shall be considered, if the student appears for the mid-term examination of that subject. ***This attendance should also be included in the fortnightly upload of attendance to the University. The attendance of mandatory(audit) courses should be uploaded separately to the University.*** A student shall not be permitted to appear for the Semester End Examinations (SEE), if his attendance is less than 75%.

5.2 A student's Seminar report and presentation on Mini Project shall be eligible for evaluation, only if he ensures a minimum of 75% of his attendance in Seminar presentation classes on Mini Project during that Semester.

5.3 **Condoning of shortage of attendance** (between 65% and 75%) up to a maximum of 10% (considering the days of attendance in sports, games, NCC, NSS activities and Medical grounds) in each subject (Theory/Lab/Mini Project with Seminar) of a semester shall be granted by the College Academic Committee on genuine reasons.

5.4 A prescribed fee per subject shall be payable for condoning shortage of attendance after getting the approval of College Academic Committee for the same. The College Academic Committee shall maintain relevant documents along with the request from the student.

5.5 Shortage of Attendance below 65% in any subject shall in **no case be condoned.**

5.6 A Student, whose shortage of attendance is not condoned in any Subject(s) (Theory/Lab/Mini Project with Seminar) in any Semester, is considered as 'Detained in that Subject(s), and is not eligible to write Semester End Examination(s) of such Subject(s), (in case of Mini Project with Seminar, his/her Mini Project with Seminar Report or Presentation are not eligible for evaluation) in that Semester; and he/she has to seek re-registration for those Subject(s) in subsequent Semesters, and attend the same as and when offered.

5.7 A student fulfills the attendance requirement in the present semester, shall not be eligible for readmission into the same class.

5.8 **a)** A student shall put in a minimum required attendance in at least **three theory subjects (excluding *mandatory(audit)* course)** in first Year I semester for promotion to first Year II Semester.

b) A student shall put in a minimum required attendance in at least **three theory subjects (excluding *mandatory(audit)* course)** in first Year II semester for promotion to second Year I Semester.

6.0 Academic Requirements

The following academic requirements must be satisfied, in addition to the attendance requirements mentioned in item no. 5. The performance of the candidate in each semester shall be evaluated subject-

wise, with a maximum of 100 marks per subject / course (theory / practical), based on Internal Evaluation and Semester End Examination.

6.1 A student shall be deemed to have satisfied the academic requirements and earned the credits allotted to each subject/course, if he secures not less than 40% of marks (30 out of 75 marks) in the End Semester Examination, and a minimum of 50% of marks in the sum total of CIE (Continuous Internal Evaluation) and SEE (Semester End Examination) taken together; in terms of Letter Grades and this implies securing 'B' Grade or above in a subject.

6.2 A student shall be deemed to have satisfied the academic requirements and earned the credits allotted to Mini Project with seminar, if student secures not less than 50% marks (i.e. 50 out of 100 allotted marks). The student would be treated as failed, if student (i) does not submit a seminar report on Mini Project or does not make a presentation of the same before the evaluation committee as per schedule or (ii) secures less than 50% marks in Mini Project with seminar evaluation. The failed student shall reappear for the above evaluation when the notification for supplementary examination is issued.

6.3 A student shall register for all subjects for total of **68** credits as specified and listed in the course structure for the chosen specialization, put in required the attendance and fulfill the academic requirements for securing **68** credits obtaining a minimum of 'B' Grade or above in each subject, and all **68** credits securing Semester Grade Point Average **(SGPA)** ≥**6.0** (in each semester) and final Cumulative Grade Point Average **(CGPA)** (i.e., CGPA at the end of PGP) ≥ **6.0**, and shall ***pass all the mandatory(audit) courses*** to complete the PGP successfully.

Note: (1) The SGPA will be computed and printed on the marks memo only if the candidate passes in all the subjects offered and gets minimum B grade in all the subjects.

(2) CGPA is calculated only when the candidate passes in all the subjects offered in all the semesters

6.4 Marks and Letter Grades obtained in all those subjects covering the above specified **68** credits alone shall be considered for the calculation of final CGPA, which will be indicated in the Grade Card /Marks Memo of second year second semester.

6.5 If a student registers for extra subject(s) (in the parent specialization or other specializations of Pharmacy) other than those listed subjects totaling to **68** credits as specified in the course structure, the performance in extra subject(s) (although evaluated and graded using the same procedure as that of the required **68** credits) will not be considered while calculating the SGPA and CGPA. For such extra subject(s) registered, percentage of marks and Letter Grade alone will be indicated in the Grade Card/Marks Memo, as a performance measure, subject to completion of the attendance and academic requirements as stated in items 5 and 6.1 - 6.3.

6.6 When a student is detained due to shortage of attendance in any subject(s) in any semester, no Grade allotment will be made for such subject(s). However, he is eligible for re-registration of such subject(s) in the subsequent semester(s), as and when next offered, with the academic regulations of the batch into which he is re-registered, by paying the prescribed fees per subject. In all these re-registration cases, the student shall have to secure a fresh set of internal marks and Semester End Examination marks for performance evaluation in such subject(s), and SGPA/CGPA calculations.

6.7 A student eligible to appear for the Semester End Examination in any subject, but absent from it or failed (failing to secure 'B' Grade or above), may reappear for that subject at the supplementary examination as and when conducted. In such cases, his Internal Marks assessed earlier for that subject will be carried over, and added to the marks secured in the supplementary examination, for

PRINCIPAL
Avanthi's Institute of Pharmaceutical Sciences
Gunthapally (V), Hayath Nagar (M),
Ranga Reddy Dist.

the purpose of evaluating his performance in that subject.

6. 8 A Student who fails to earn **68** credits as per the specified course structure, and as indicated above, within **four** academic years from the date of commencement of his first year first semester, shall forfeit his seat in M.Pharm. programme and his admission **shall stand cancelled.**

7.0 Evaluation - Distribution and Weightage of Marks

The performance of a student in each semester shall be evaluated subject- wise (irrespective of credits assigned) for a maximum of 100 marks.

7.1 For the theory subjects 75 marks shall be awarded for the performance in the Semester End Examination and 25 marks shall be awarded for Continuous Internal Evaluation (CIE). The Continuous Internal Evaluation shall be made based on the average of the marks secured in the two Mid-Term Examinations conducted, first Mid-Term examinations in the middle of the Semester and second Mid-Term examinations during the last week of instruction. Each Mid-Term Examination shall be conducted for a total duration of 120 minutes with Part 'A' as compulsory consisting of 5 questions carrying 2 marks each (10 marks), and Part 'B' with 3 questions to be answered out of 5 questions, each question carrying 5 marks (15 marks). The details of the Question Paper pattern for Semester End Examination (Theory) are given below:

- The Semester End Examination will be conducted for 75 marks. It consists of two parts.

  i) Part A for 25 marks, ii) Part B for 50 marks.
- Part A is compulsory and consists of 5 questions, one from each unit and carrying 5 marks each.
- Part B consists of 5 questions carrying 10 marks each. There will be two questions from each unit and only one should be answered.

7.2 For practical subjects, 75 marks shall be awarded for performance in the Semester End Examinations and 25 marks shall be awarded for day-to-day performance as Internal Marks.

7.3 For conducting laboratory end examinations of all PG Programmes, one internal examiner and one external examiner are to be appointed by the Principal of the College and this is to be informed to the Director of Evaluation within two weeks, before commencement of the lab end examinations. The external examiner should be selected from outside the College concerned but within the cluster. No external examiner should be appointed from any other College in the same cluster/any other cluster which is run by the same Management.

7.4 There shall be Mini Project with Seminar during I year II semester for internal evaluation of 100 marks. The Departmental Academic Committee (DAC) will review the progress of the mini project during the seminar presentations and evaluate the same for 50 marks. Mini Project Viva Voce will be evaluated by the DAC for another 50 marks before the semester end examinations. Student shall carryout the mini project in consultation with the mini project supervisor which may include critically reviewing the literature, project implementation and submit it to the department in the form of a report and shall make an oral presentation before the DAC consisting of Head of the Department, Mini Project supervisor and two other senior faculty members of the department. The student has to secure a minimum of 50% of marks in i) seminar presentation and ii) mini project viva voce, to be declared successful. If he fails to obtain the minimum marks, he has to reappear for the same as and when scheduled.

7.5 Every candidate shall be required to submit a dissertation on a topic approved by the Dissertation Review Committee.

7.6 A Dissertation Review Committee (DRC) shall be constituted with the Head of the Department as

AVANTHI INSTITUTE OF PHARMACEUTICAL SCIENCES * ABDULLAPURMET *

PRINCIPAL
Avanthi's Institute of Pharmaceutical Sciences
Gunthapally (V), Hayath Nagar (M),
Ranga Reddy Dist.

Chairperson, Dissertation Supervisor and one senior faculty member of the Department offering the M.Pharm. programme.

7.7 Registration of Dissertation Work: A candidate is permitted to register for the Dissertation Work after satisfying the attendance requirement in all the subjects, both theory and laboratory.

7.8 After satisfying 7.7, a candidate must present in Dissertation Work Review - I, in consultation with his Dissertation Supervisor, the title, objective and plan of action of his Dissertation work to the Dissertation Review Committee (DRC) for approval within four weeks from the commencement of Second year First Semester. Only after obtaining the approval of the DRC can the student initiate the Dissertation work.

7.9 If a candidate wishes to change his supervisor or topic of the Dissertation, he can do so with the approval of the DRC. However, the DRC shall examine whether or not the change of topic/supervisor leads to a major change of his initial plans of Dissertation proposal. If yes, his date of registration for the project work starts from the date of change of Supervisor or topic as the case may be.

7.10 A candidate shall submit his Dissertation progress report in two stages at least with a gap of **three** months between them.

7.11 The work on the Dissertation shall be initiated at the beginning of the II year and the duration of the Dissertation is two semesters. A candidate is permitted to submit Dissertation Thesis only after successful completion of all theory and practical courses with the approval of DRC not earlier than 40 weeks from the date of approval of the Dissertation work. For the approval of DRC the candidate shall submit the draft copy of thesis to the Head of the Department and make an oral presentation before the DRC.

7.12 The Dissertation Work Review - II in II Year I Sem. carries internal marks of 100. Evaluation should be done by the DRC for 50 marks and the Supervisor will evaluate the work for the other 50 marks. The Supervisor and DRC will examine the Problem Definition, Objectives, Scope of Work, Literature Survey in the same domain and progress of the Dissertation Work. A candidate has to secure a minimum of 50% of marks to be declared successful in Dissertation Work Review - II. If he fails to obtain the minimum required marks, he has to reappear for Dissertation Work Review - II as and when conducted.

7.13 The Dissertation Work Review - III in II Year II Sem. carries 100 internal marks. Evaluation should be done by the DRC for 50 marks and the Supervisor will evaluate it for the other 50 marks. The DRC will examine the overall progress of the Dissertation Work and decide whether or not the Dissertation is eligible for final submission. A candidate has to secure a minimum of 50% of marks to be declared successful in Dissertation Work Review - III. If he fails to obtain the required minimum marks, he has to reappear for Dissertation Work Review - III as and when conducted. For Dissertation Evaluation (Viva Voce) in II Year II Sem. there are external marks of 100 and it is evaluated by the external examiner. The candidate has to secure a minimum of 50% marks in Dissertation Evaluation (Viva-Voce) examination.

7.14 Dissertation Work Reviews - II and III shall be conducted in phase I (Regular) and Phase II (Supplementary). Phase II will be conducted only for unsuccessful students in Phase I. The unsuccessful students in Dissertation Work Review - II (Phase II) shall reappear for it at the time of Dissertation Work Review - III (Phase I). These students shall reappear for Dissertation Work Review - III in the next academic year at the time of Dissertation Work Review - II only after completion of Dissertation Work Review - II, and then Dissertation Work Review - III follows. The unsuccessful students in Dissertation Work Review - III (Phase II) shall reappear for Dissertation Work Review - III in the next academic year only at the time of Dissertation Work Review - II (Phase I).

AVANTHI INSTITUTE OF PHARMACEUTICAL SCIENCES * ABDULLAPURMET *

PRINCIPAL
Avanthi's Institute of Pharmaceutical Sciences
Gunthapally (V), Hayath Nagar (M),
Ranga Reddy Dist.

7.15 After approval from the DRC, a soft copy of the thesis should be submitted for ANTI-PLAGIARISM check and the plagiarism report should be submitted to the University and be included in the final thesis. The Thesis will be accepted for submission, if the similarity index is less than **30%**. If the similarity index has more than the required_percentage, the student is advised to modify accordingly and re-submit the soft copy of the thesis after one month. The maximum number of re-submissions of thesis after plagiarism check is limited to TWO. The candidate has to register for the Dissertation work and work for two semesters. After three attempts, the admission is liable to be cancelled. The college authorities are advised to make plagiarism check of every soft copy of theses before submissions.

7.16 Three copies of the Dissertation Thesis certified by the supervisor shall be submitted to the College/School/Institute, after submission of a research paper related to the Dissertation work in a UGC approved journal. A copy of the submitted research paper shall be attached to thesis.

7.17 The thesis shall be adjudicated by an external examiner selected by the University. For this, the Principal of the College/School/Institute shall submit a panel of **three** examiners from among the list of experts in the relevant specialization as submitted by the supervisor concerned and Head of the Department.

7.18 If the report of the external examiner is unsatisfactory, the candidate shall revise and resubmit the Thesis. If the report of the examiner is unsatisfactory again, the thesis shall be summarily rejected. Subsequent actions for such dissertations may be considered, only on the specific recommendations of the external examiner and /or Dissertation Review Committee. No further correspondence in this matter will be entertained, if there is no specific recommendation for resubmission.

7.19 If the report of the examiner is satisfactory, the Head of the Department shall coordinate and make arrangements for the conduct of Dissertation Viva-Voce examination. The Dissertation Viva-Voce examination shall be conducted by a board consisting of the Supervisor, Head of the Department and the external examiner who adjudicated the Thesis. The candidate has to secure a minimum of 50% of marks in Dissertation Evaluation (Viva-Voce) examination.

7.20 If he fails to fulfill the requirements as specified in 7.19, he will reappear for the Dissertation Viva-Voce examination only after three months. In the reappeared examination also, if he fails to fulfill the requirements, he will not be eligible for the award of the degree, unless he is asked to revise and resubmit his Dissertation Work by the board within a specified time period (within **four** years from the date of commencement of his first year first semester).

7.21 The Dissertation Viva-Voce External examination marks must be submitted to the University on the day of the examination.

7.22 ***For mandatory(audit) courses, a student has to secure 40 marks out of 100 marks (i.e. 40% of the marks allotted) in the continuous internal evaluation for passing the subject/course. These marks should also be uploaded along with the internal marks of other subjects.***

7.23 ***No marks or letter grades shall be allotted for mandatory(audit) courses. Only Pass/Fail shall be indicated in Grade Card.***

8.0 Re-Admission/Re-Registration

8.1 Re-Admission for Discontinued Student

A student, who has discontinued the M.Pharm. degree programme due to any reason whatsoever, may be considered for **'readmission'** into the same degree programme (with the same specialization) with the academic regulations of the batch into which he gets readmitted, with prior permission from the authorities concerned, subject to item 6.6.

- PRINCIPAL
Avanthi's Institute of Pharmaceutical Sciences
Gunthapally (V), Hayath Nagar (M),
Ranga Reddy Dist.

8.2 If a student is detained in a subject (s) due to shortage of attendance in any semester, he may be permitted to **re-register** for the same subject(s) in the same category (core or elective group) or equivalent subject, if the same subject is not available, as suggested by the Board of Studies of that department, as and when offered in the subsequent semester(s), with the academic regulations of the batch into which he seeks re-registration, with prior permission from the authorities concerned, subject to item 3.2

8.3 A candidate shall be given one chance to re-register and attend the classes for a maximum of two subjects, if the internal marks secured by a candidate are less than 50% and failed in those subjects but fulfilled the attendance requirement. A candidate must re-register for failed subjects within four weeks of commencement of the class work and secure the required minimum attendance. In the event of the student taking this chance, his Continuous Internal Evaluation (internal) marks and Semester End Examination marks obtained in the previous attempt stand cancelled.

9.0 Examinations and Assessment - The Grading System

9.1 Grades will be awarded to indicate the performance of each student in each Theory Subject, or Lab/Practicals, or Mini Project with Seminar, Dissertation, etc., based on the percentage of marks obtained in CIE + SEE (Continuous Internal Evaluation + Semester End Examination, both taken together) as specified in Item 7 above, and a corresponding Letter Grade shall be given.

9.2 As a measure of the student's performance, a 10-point Absolute Grading System using the following Letter Grades (UGC Guidelines) and corresponding percentage of marks shall be followed:

% of Marks Secured in a subject/Course (Class Intervals)	Letter Grade (UGC Guidelines)	Grade Points
90% and above (≥ 90%, ≤ 100%)	O (Outstanding)	10
Below 90% but not less than 80% (≥80%, <90%)	A^+ (Excellent)	9
Below 80% but not less than 70% (≥70%, <80%)	A (Very Good)	8
Below 70% but not less than 60% (≥60%, <70%)	B^+ (Good)	7
Below 60% but not less than 50% (≥ 50%, <60%)	B (above Average)	6
Below 50% (< 50%)	F (FAIL)	0
Absent	**Ab**	**0**

9.3 A student obtaining F Grade in any Subject is deemed to have 'failed' and is required to reappear as 'Supplementary Candidate' for the Semester End Examination (SEE), as and when conducted. In such cases, his Internal Marks (CIE Marks) in those subjects will remain as obtained earlier.

9.4 If a student has not appeared for the examinations, 'Ab' Grade will be allocated to him for any subject and shall be considered 'failed' and will be required to reappear as 'Supplementary Candidate' for the Semester End Examination (SEE), as and when conducted.

9.5 A Letter Grade does not imply any specific marks percentage; it is only the range of percentage of marks.

9.6 In general, a student shall not be permitted to repeat any Subject/ Course (s) only for the sake of 'Grade Improvement' or 'SGPA/ CGPA Improvement'.

AVANTHI INSTITUTE OF PHARMACEUTICAL SCIENCES * ABDULLAPURMET *

- PRINCIPAL
Avanthi's Institute of Pharmaceutical Sciences
Gunthapally (V), Hayath Nagar (M),
Ranga Reddy Dist.

9.7 A student earns Grade Point (GP) in each Subject/ Course, on the basis of the Letter Grade obtained by him in that Subject/ Course. The corresponding 'Credit Points' (CP) are computed by multiplying the Grade Point with Credits for that particular Subject/ Course.

Credit Points (CP) = Grade Point (GP) x Credits .... For a Course

9.8 The student passes the Subject/ Course only when he **gets GP ≥6 (B Grade or above).**

9.9 The Semester Grade Point Average (SGPA) is calculated by dividing the Sum of Credit Points (ΣCP) secured from ALL Subjects/ Courses registered in a Semester, by the Total Number of Credits registered during that Semester. SGPA is rounded off to TWO Decimal Places. SGPA is thus computed as

$$\text{SGPA} = \{ \sum_{i=1}^{N} C_i G_i \} / \{ \sum_{i=1}^{N} C_i \} \text{ .... For each Semester,}$$

where 'i' is the Subject indicator index (taking into account all Subjects in a Semester), 'N' is the no. of Subjects 'REGISTERED' for the Semester (as specifically required and listed under the Course Structure of the parent Department), C_i is the no. of Credits allotted to the i^{th} Subject, and G_i represents the Grade Points (GP) corresponding to the Letter Grade awarded for that i^{th} Subject.

9.10 The Cumulative Grade Point Average (CGPA) is a measure of the overall cumulative performance of a student over all Semesters considered for registration. The CGPA is the ratio of the Total Credit Points secured by a student in ALL registered Courses in ALL Semesters, and the Total Number of Credits registered in ALL the Semesters. CGPA is rounded off to TWO Decimal Places. CGPA is thus computed from the I Year Second Semester onwards, at the end of each Semester, as per the formula

$$\text{CGPA} = \{ \sum_{j=1}^{M} C_j G_j \} / \{ \sum_{j=1}^{M} C_j \} \text{ ... for all S Semesters registered}$$

(ie., upto and inclusive of S Semesters, S ≥2),

where 'M' is the TOTAL no. of Subjects (as specifically required and listed under the Course Structure of the parent Department) the Student has 'REGISTERED' for from the 1st Semester onwards upto and inclusive of the Semester S (obviously M > N), 'j' is the Subject indicator index (taking into account all Subjects from 1 to S Semesters), C_j is the no. of Credits allotted to the j^{th} Subject, and G_j represents the Grade Points (GP) corresponding to the Letter Grade awarded for that j^{th} Subject. After registration and completion of I Year I Semester however, the SGPA of that Semester itself may be taken as the CGPA, as there are no cumulative effects.

Illustration of calculation of SGPA

Course/Subject	Credits	Letter Grade	Grade points	Credit Points
Course 1	4	A	8	4*8 = 32
Course 2	4	O	10	4*10 = 40
Course 3	4	B	6	4*6 = 24
Course 4	3	B	6	3*6 = 18
Course 5	3	A+	9	3*9 = 27
Course 6	3	B	6	3*6 = 18
	21			159

SGPA = 159/21 = 7.57

Illustration of calculation of CGPA

Semester	Credits	SGPA	Credits * SGPA
Semester I	24	7	24*7 = 168
Semester II	24	6	24*6 = 144
Semester III	24	6.5	24*6.5 = 156
Semester IV	24	6	24*6 = 144
	96		612

CGPA = 612/96 = 6.37

10.0 Award of Degree and Class

10.1 If a student who registers for all the specified Subjects/ Courses as listed in the Course Structure, satisfies all the Course Requirements, and passes the examinations prescribed in the entire PG Programme (PGP), and secures the required number of **68** Credits (with CGPA ≥6.0), shall be declared to have 'QUALIFIED' for the award of the M.Pharm. Degree in the chosen specialization of Pharmacy that he was admitted into.

10.2 Award of Class

After a student has earned the requirements prescribed for the completion of the programme and is eligible for the award of M.Pharm. Degree, he shall be placed in one of the following three classes based on the CGPA:

Class Awarded	CGPA
First Class with Distinction	≥ 7.75
First Class	6.75≤ CGPA < 7.75
Second Class	6.00≤ CGPA < 6.75

A student with final CGPA (at the end of the **PGP) < 6.00** shall not be eligible for the Award of Degree.

11.0 Withholding of Results

If the student has not paid the dues, if any, to the University or if any case of indiscipline is pending against him, the result and degree of the student will be withheld and he will not be allowed into the next semester.

12.0 General

12.1 **Credit**: A unit by which the course work is measured. It determines the number of hours of instructions required per week. One credit is equivalent to one hour of teaching (lecture or tutorial) or two hours of practical work/field work per week.

12.2 **Credit Point:** It is the product of grade point and number of credits for a course.

12.3 Wherever the words "he", "him", "his", occur in the regulations, they shall include "she", "her".

12.4 The academic regulation should be read as a whole for the purpose of any interpretation.

AVANTHI INSTITUTE OF PHARMACEUTICAL SCIENCES * ABDULLAPURMET *

PRINCIPAL
Avanthi's Institute of Pharmaceutical Sciences
Gunthapally (V), Hayath Nagar (M),
Ranga Reddy Dist.

12.5 In case of any doubt or ambiguity in the interpretation of the above rules, the decision of the University is final.

12.6 The University may change or amend the academic regulations or syllabi at any time and the changes or amendments made shall be applicable to all the students with effect from the dates notified by the University.

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Gunthapally (V), Hayath Nagar (M),
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MALPRACTICES RULES

DISCIPLINARY ACTION FOR IMPROPER CONDUCT IN EXAMINATIONS

S.No	Nature of Malpractices/Improper conduct	Punishment
	If the candidate:	
1.(a)	Possesses or keeps accessible in examination hall, any paper, note book, programmable calculators, Cell phones, pager, palm computers or any other form of material concerned with or related to the subject to the examination (theory or practical) in which he is appearing but has not made use of (material shall include any marks on the body of the candidate which can be used as an aid in the subject of the examination).	Expulsion from the examination hall and cancellation of the performance in that subject only.
(b)	Gives assistance or guidance or receives it from any other candidate orally or by any other body language methods or communicates through cell phones with any candidate or persons in or outside the exam hall in respect of any matter.	Expulsion from the examination hall and cancellation of the performance in that subject only of all the candidates involved. Incase of an outsider, he will be handed over to the police and a case is registered against him.
2.	Has copied in the examination hall from any paper, book, programmable calculators, palm computers or any other form of material relevant to the subject to the examination (theory or practical) in which the candidate is appearing.	Expulsion from the examination hall and cancellation of the performance in that subject and all other subjects the candidate has already appeared including practical examinations and project work and shall not be permitted to appear for the remaining examinations of the subjects of that Semester/year. The Hall Ticket of the candidate is to be cancelled and sent to the University.
3.	Impersonates any other candidate in connection with the examination.	The candidate who has impersonated shall be expelled from examination hall. The candidate is also debarred and forfeits the seat. The performance of the original candidate, who has been impersonated, shall be cancelled in all the subjects of the examination (including practicals and project work) already appeared and shall not be allowed to appear for examinations of the remaining subjects of that semester/year. The candidate is also debarred for two consecutive semesters from class work and all University examinations. The continuation of the course by the candidate is subject to the academic regulations in connection with forfeiture of seat. If the imposter is an outsider, he will be handed over to the police and a case is registered against him.
4.	Smuggles in the Answer book or additional sheet or takes out or arranges to send out the question paper during the examination or	Expulsion from the examination hall and cancellation of performance in that subject and all the other subjects the candidate has already

	answer book or additional sheet, during or after the examination.	appeared including practical examinations and project work and shall not be permitted for the remaining examinations of the subjects of that semester/year. The candidate is also debarred for two consecutive semesters from class work and all University examinations. The continuation of the course by the candidate is subject to the academic regulations in connection with forfeiture of seat.
5.	Uses objectionable, abusive or offensive language in the answer paper or in letters to the examiners or writes to the examiner requesting him to award pass marks.	Cancellation of the performance in that subject.
6.	Refuses to obey the orders of the Chief Superintendent/Assistant – Superintendent/ any officer on duty or misbehaves or creates disturbance of any kind in and around the examination hall or organizes a walk out or instigates others to walk out, or threatens the officer-in charge or any person on duty in or outside the examination hall of any injury to his person or to any of his relations whether by words, either spoken or written or by signs or by visible representation, assaults the officer-in- charge, or any person on duty in or outside the examination hall or any of his relations, or indulges in any other act of misconduct or mischief which result in damage to or destruction of property in the examination hall or any part of the College campus or engages in any other act which in the opinion of the officer on duty amounts to use of unfair means or misconduct or has the tendency to disrupt the orderly conduct of the examination.	Incase of students of the college, they shall be expelled from examination halls and cancellation of their performance in that subject and all other subjects the candidate(s) has (have) already appeared and shall not be permitted to appear for the remaining examinations of the subjects of that semester/year. The candidates also are debarred and forfeit their seats. In case of outsiders, they will be handed over to the police and a police case is registered against them.
7.	Leaves the exam hall taking away answer script or intentionally tears of the script or any par there of inside or outside the examination hall.	Expulsion from the examination hall and cancellation of performance in that subject and all the other subjects the candidate has already appeared including practical examinations and project work and shall not be permitted for the remaining examinations of the subjects of that semester/year. The candidate is also debarred for two consecutive semesters from class work and all University examinations. The continuation of the course by the candidate is subject to the academic regulations in connection with forfeiture of seat.
8.	Possess any lethal weapon or firearm in the examination hall.	Expulsion from the examination hall and cancellation of the performance in that subject and all other subjects the candidate has already appeared including practical examinations and project work and shall not be permitted for the

		remaining examinations of the subjects of that semester/year. The candidate is also debarred and forfeits the seat.
9.	If student of the college, who is not a candidate for the particular examination or any person not connected with the college indulges in any malpractice or improper conduct mentioned in clause 6 to 8.	Student of the colleges expulsion from the examination hall and cancellation of the performance in that subject and all other subjects the candidate has already appeared including practical examinations and project work and shall not be permitted for the remaining examinations of the subjects of that semester/year. The candidate is also debarred and forfeits the seat. Person(s) who do not belong to the College will be handed over to police and, a police case will be registered against them.
10.	Comes in a drunken condition to the examination hall.	Expulsion from the examination hall and cancellation of the performance in that subject and all other subjects the candidate has already appeared including practical examinations and project work and shall not be permitted for the remaining examinations of the subjects of that semester/year.
11.	Copying detected on the basis of internal evidence, such as, during valuation or during special scrutiny.	Cancellation of the performance in that subject and all other subjects the candidate has appeared including practical examinations and project work of that semester/year examinations.
12.	If any malpractice is detected which is not covered in the above clauses 1 to 11 shall be reported to the University for further action to award suitable punishment.	

Malpractices identified by squad or special invigilators

1. Punishments to the candidates as per the above guidelines.
2. Punishment for institutions: (if the squad reports that the college is also involved in encouraging malpractices)
   - (i) A show cause notice shall be issued to the college.
   - (ii) Impose a suitable fine on the college.
   - (iii) Shifting the examination centre from the college to another college for a specific period of not less than one year

AVANTHI INSTITUTE OF PHARMACEUTICAL SCIENCES * ABDULLAPURMET *

- PRINCIPAL
Avanthi's Institute of Pharmaceutical Sciences
Gunthapally (V), Hayath Nagar (M),
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रजिस्ट्री सं. डीएल (एन)-04/0007/2003--05 REGISTERED No. DL(N)—04/0007/2003—05

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इस भाग में भिन्न पृष्ठ संख्या दी जाती है जिससे कि यह अलग संकलन के रूप में रखा जा सके।
(Separate paging is given to this Part in order that it may be filed as a separate compilation)

भाग III—खण्ड 4
[PART III—SECTION 4]
[सांविधिक निकायों द्वारा जारी की गई विविध अधिसूचनाएं जिसमें कि आदेश, विज्ञापन और सूचनाएं सम्मिलित हैं]
[Miscellaneous Notifications including Notifications, Orders, Advertisements and Notices issued by Statutory Bodies]

भारतीय रिज़र्व बैंक

मुंबई-400001, दिनांक 9 अप्रैल 2008

सदर्भ : बैंपविवि. सं. आईबीडी.-14241/23.13.048/2007-08--भारतीय रिज़र्व बैंक अधिनियम, 934 (1934 का 2) की धारा 42 की उप-धारा (6) के खण्ड (ग) के अनुसरण में भारतीय रिज़र्व बैंक इसके द्वारा निदेश देता है कि उक्त अधिनियम की दूसरी अनुसूची में निम्नलिखित परिवर्तन किये जाएं :--

''अरब बांगलादेश बैंक लिमिटेड'' शब्दों के स्थान पर ''एबी बैंक लिमिटेड'' शब्द होंगे।

आनन्द सिन्हा
कार्यपालक निदेशक

[PUBLISHED IN THE GAZETTE OF INDIA, No.19, PART III, SECTION 4]

Ministry of Health and Family Welfare
(Pharmacy Council of India)

New Delhi, 10th May, 2008.

Pharm.D. Regulations 2008

Regulations framed under section 10 of the Pharmacy Act, 1948 (8 of 1948).

(As approved by the Government of India, Ministry of Health vide, letter No.V.13013/1/2007-PMS, dated the 13th March, 2008 and notified by the Pharmacy Council of India).

No.14-126/2007-PCI.— In exercise of the powers conferred by section 10 of the Pharmacy Act, 1948 (8 of 1948), the Pharmacy Council of India, with the approval of the Central Government, hereby makes the following regulations, namely:-

CHAPTER-I

1. Short title and commencement. – (1) These regulations may be called the Pharm.D. Regulations 2008.

   (2) They shall come into force from the date of their publication in the official Gazette.

2. Pharm.D. shall consist of a certificate, having passed the course of study and examination as prescribed in these regulations, for the purpose of registration as a pharmacist to practice the profession under the Pharmacy Act, 1948.

CHAPTER-II

3. Duration of the course. –

a) Pharm.D: The duration of the course shall be six academic years (five years of study and one year of internship or residency) full time with each academic year spread over a period of not less than two hundred working days. The period of six years duration is divided into two phases –

Phase I – consisting of First, Second, Third, Fourth and Fifth academic year.

Phase II – consisting of internship or residency training during sixth year involving posting in speciality units. It is a phase of training wherein a student is exposed to actual pharmacy practice or clinical pharmacy services and acquires skill under supervision so that he or she may become capable of functioning independently.

b) Pharm.D. (Post Baccalaureate): The duration of the course shall be for three academic years (two years of study and one year internship or residency) full time with each academic year spread over a period of not less than two hundred working days. The period of three years duration is divided into two phases –

Phase I – consisting of First and Second academic year.

Phase II – consisting of Internship or residency training during third year involving posting in speciality units. It is a phase of training wherein a student is exposed to actual pharmacy practice or clinical pharmacy services, and acquires skill under supervision so that he or she may become capable of functioning independently.

4. Minimum qualification for admission to. –

a) Pharm.D. Part-I Course – A pass in any of the following examinations -

(1) 10+2 examination with Physics and Chemistry as compulsory subjects along with one of the following subjects:

Mathematics or Biology.

(2) A pass in D.Pharm course from an institution approved by the Pharmacy Council of India under section 12 of the Pharmacy Act.

(3) Any other qualification approved by the Pharmacy Council of India as equivalent to any of the above examinations.

Provided that a student should complete the age of 17 years on or before 31st December of the year of admission to the course.

Provided that there shall be reservation of seats for the students belonging to the Scheduled Castes, Scheduled Tribes and other Backward Classes in accordance with the instructions issued by the Central Government/State Government/Union Territory Administration as the case may be from time to time.

b) Pharm.D. (Post Baccalaureate) Course -

A pass in B.Pharm from an institution approved by the Pharmacy Council of India under section 12 of the Pharmacy Act:

Provided that there shall be reservation of seats for the students belonging to the Scheduled Castes, Scheduled Tribes and other Backward Classes in accordance with the instructions issued by the Central Government/State Government/Union Territory Administration as the case may be from time to time.

5. Number of admissions in the above said programmes shall be as prescribed by the Pharmacy Council of India from time to time and presently be restricted as below –
   i) Pharm.D. Programme – 30 students.
   ii) Pharm.D. (Post Baccalaureate) Programme – 10 students.

6. Institutions running B.Pharm programme approved under section 12 of the Pharmacy Act, will only be permitted to run Pharm.D. programme. Pharm.D. (Post Baccalaureate) programme will be permitted only in those institutions which are permitted to run Pharm.D. programme.

7. Course of study. – The course of study for Pharm.D. shall include the subjects as given in the Tables below. The number of hours in a week, devoted to each subject for its teaching in theory, practical and tutorial shall not be less than that noted against it in columns (3), (4) and (5) below.

TABLES

First Year :

S.No.	Name of Subject	No. of hours of Theory	No. of hours of Practical	No. of hours of Tutorial
(1)	(2)	(3)	(4)	(5)
1.1	Human Anatomy and Physiology	3	3	1
1.2	Pharmaceutics	2	3	1
1.3	Medicinal Biochemistry	3	3	1
1.4	Pharmaceutical Organic Chemistry	3	3	1
1.5	Pharmaceutical Inorganic Chemistry	2	3	1
1.6	Remedial Mathematics/ Biology	3	3*	1
	Total hours	**16**	**18**	**6 = (40)**

* For Biology

Second Year:

S.No	Name of Subject	No. of hours of Theory	No. of hours of Practical	No. of hours of Tutorial
(1)	(2)	(3)	(4)	(5)
2.1	Pathophysiology	3	-	1
2.2	Pharmaceutical Microbiology	3	3	1
2.3	Pharmacognosy & Phytopharmaceuticals	3	3	1
2.4	Pharmacology-I	3	-	1
2.5	Community Pharmacy	2	-	1
2.6	Pharmacotherapeutics-I	3	3	1
	Total Hours	**17**	**9**	**6 = 32**

Third Year:

S.No.	Name of Subject	No. of hours of Theory	No. of hours of Practical	No. of hours of Tutorial
(1)	(2)	(3)	(4)	(5)
3.1	Pharmacology-II	3	3	1
3.2	Pharmaceutical Analysis	3	3	1
3.3	Pharmacotherapeutics-II	3	3	1
3.4	Pharmaceutical Jurisprudence	2	-	-
3.5	Medicinal Chemistry	3	3	1
3.6	Pharmaceutical Formulations	2	3	1
	Total hours	**16**	**15**	**5 = 36**

Fourth Year:

S.No.	Name of Subject	No. of hours of Theory	No. of hours of Practical/ Hospital Posting	No. of hours of Tutorial
(1)	(2)	(3)	(4)	(5)
4.1	Pharmacotherapeutics-III	3	3	1
4.2	Hospital Pharmacy	2	3	1
4.3	Clinical Pharmacy	3	3	1
4.4	Biostatistics & Research Methodology	2	-	1
4.5	Biopharmaceutics & Pharmacokinetics	3	3	1
4.6	Clinical Toxicology	2	-	1
	Total hours	**15**	**12**	**6 = 33**

Fifth Year:

S.No.	Name of Subject	No. of hours of Theory	No. of hours of Hospital posting*	No. of hours of Seminar
(1)	(2)	(3)	(4)	(5)
5.1	Clinical Research	3	-	1
5.2	Pharmacoepidemiology and Pharmacoeconomics	3	-	1
5.3	Clinical Pharmacokinetics & Pharmacotherapeutic Drug Monitoring	2	-	1
5.4	Clerkship *	-	-	1
5.5	Project work (Six Months)	-	20	-
	Total hours	**8**	**20**	**4 = 32**

* Attending ward rounds on daily basis.

Sixth Year:

Internship or residency training including postings in speciality units. Student should independently provide the clinical pharmacy services to the allotted wards.

(i) Six months in General Medicine department, and

(ii) Two months each in three other speciality departments

8. Syllabus. – The syllabus for each subject of study in the said Tables shall be as specified in Appendix -A to these regulations.

9. Approval of the authority conducting the course of study. – (1) No person, institution, society or university shall start and conduct Pharm.D or Pharm.D. (Post Baccalaureate) programme without the prior approval of the Pharmacy Council of India.

(2) Any person or pharmacy college for the purpose of obtaining permission under sub-section (1) of section 12 of the Pharmacy Act, shall submit a scheme as prescribed by the Pharmacy Council of India.

(3) The scheme referred to in sub-regulation (2) above, shall be in such form and contain such particulars and be preferred in such manner and be accompanied with such fee as may be prescribed:

Provided that the Pharmacy Council of India shall not approve any institution under these regulations unless it provides adequate arrangements for teaching in regard to building, accommodation, labs., equipments, teaching staff, non-teaching staff, etc., as specified in Appendix-B to these regulations.

10. Examination. – (1) Every year there shall be an examination to examine the students.

(2) Each examination may be held twice every year. The first examination in a year shall be the annual examination and the second examination shall be supplementary examination.

(3) The examinations shall be of written and practical (including oral nature) carrying maximum marks for each part of a subject as indicated in Tables below :

TABLES

First Year examination :

S.No.	Name of Subject	Maximum marks for Theory			Maximum marks for Practicals		
		Examination	Sessional	Total	Examination	Sessional	Total
1.1	Human Anatomy and Physiology	70	30	100	70	30	100
1.2	Pharmaceutics	70	30	100	70	30	100
1.3	Medicinal Biochemistry	70	30	100	70	30	100
1.4	Pharmaceutical Organic Chemistry	70	30	100	70	30	100
1.5	Pharmaceutical Inorganic Chemistry	70	30	100	70	30	100
1.6	Remedial Mathematics/ Biology	70	30	100	70*	30*	100*
				600			600 = 1200

* for Biology.

Second Year examination :

S.No.	Name of Subject	Maximum marks for Theory			Maximum marks for Practicals		
		Examination	Sessional	Total	Examination	Sessional	Total
2.1	Pathophysiology	70	30	100	-	-	-
2.2	Pharmaceutical Microbiology	70	30	100	70	30	100
2.3	Pharmacognosy & Phytopharmaceuticals	70	30	100	70	30	100
2.4	Pharmacology-I	70	30	100	-	-	-
2.5	Community Pharmacy	70	30	100	-	-	-
2.6	Pharmacotherapeutics-I	70	30	100	70	30	100
				600			300 = 900

Third Year examination :

S.No.	Name of Subject	Maximum marks for Theory			Maximum marks for Practicals		
		Examination	Sessional	Total	Examination	Sessional	Total
3.1	Pharmacology-II	70	30	100	70	30	100
3.2	Pharmaceutical Analysis	70	30	100	70	30	100
3.3	Pharmacotherapeutics-II	70	30	100	70	30	100
3.4	Pharmaceutical Jurisprudence	70	30	100	-	-	-
3.5	Medicinal Chemistry	70	30	100	70	30	100
3.6	Pharmaceutical Formulations	70	30	100	70	30	100
				600			500 = 1100

Fourth Year examination :

S.No.	Name of Subject	Maximum marks for Theory			Maximum marks for Practicals		
		Examination	Sessional	Total	Examination	Sessional	Total
4.1	Pharmacotherapeutics-III	70	30	100	70	30	100
4.2	Hospital Pharmacy	70	30	100	70	30	100
4.3	Clinical Pharmacy	70	30	100	70	30	100
4.4	Biostatistics & Research Methodology	70	30	100	-	-	-
4.5	Biopharmaceutics & Pharmacokinetics	70	30	100	70	30	100
4.6	Clinical Toxicology	70	30	100	-	-	-
				600			400 = 1000

Fifth Year examination :

S.No.	Name of Subject	Maximum marks for Theory			Maximum marks for Practicals		
		Examination	Sessional	Total	Examination	Sessional	Total
5.1	Clinical Research	70	30	100	-	-	-
5.2	Pharmacoepidemiology and Pharmacoeconomics	70	30	100	-	-	-
5.3	Clinical Pharmacokinetics & Pharmacotherapeutic Drug Monitoring	70	30	100	-	-	-
5.4	Clerkship *	-	-	-	70	30	100
5.5	Project work (Six Months)	-	-	-	100**	-	100
				300			200 = 500

* Attending ward rounds on daily basis.

** 30 marks – viva-voce (oral)
70 marks – Thesis work

11. Eligibility for appearing Examination.— Only such students who produce certificate from the Head of the Institution in which he or she has undergone the Pharm.D. or as the case may be, the Pharm.D. (Post Baccalaureate) course, in proof of his or her having regularly and satisfactorily undergone the course of study by attending not less than 80% of the classes held both in theory and in practical separately in each subject shall be eligible for appearing at examination.

12. Mode of examinations.— (1) Theory examination shall be of three hours and practical examination shall be of four hours duration.

    (2) A Student who fails in theory or practical examination of a subject shall re-appear both in theory and practical of the same subject.

    (3) Practical examination shall also consist of a viva –voce (Oral) examination.

    (4) Clerkship examination – Oral examination shall be conducted after the completion of clerkship of students. An external and an internal examiner will evaluate the student. Students may be asked to present the allotted medical cases followed by discussion. Students' capabilities in delivering clinical pharmacy services, pharmaceutical care planning and knowledge of therapeutics shall be assessed.

13. Award of sessional marks and maintenance of records.— (1) A regular record of both theory and practical class work and examinations conducted in an institution imparting training for Pharm.D. or as the case may be, Pharm.D. (Post Baccalaureate) course, shall be maintained for each student in the institution and 30 marks for each theory and 30 marks for each practical subject shall be allotted as sessional.

    (2) There shall be at least two periodic sessional examinations during each academic year and the highest aggregate of any two performances shall form the basis of calculating sessional marks.

    (3) The sessional marks in practicals shall be allotted on the following basis:-

        (i) Actual performance in the sessional examination (20 marks);

        (ii) Day to day assessment in the practical class work, promptness, viva-voce record maintenance, etc. (10 marks).

14. Minimum marks for passing examination.— A student shall not be declared to have passed examination unless he or she secures at least 50% marks in each of the subjects separately in the theory examinations, including sessional marks and at least 50% marks in each of the practical examinations including sessional marks. The students securing 60% marks or above in aggregate in all subjects in a single attempt at the Pharm.D. or as the case may be, Pharm. D. (Post Baccalaureate) course examination shall be declared to have passed in first class. Students securing 75% marks or above in any subject or subjects shall be declared to have passed with distinction in the subject or those subjects provided he or she passes in all the subjects in a single attempt.

15. Eligibility for promotion to next year.— All students who have appeared for all the subjects and passed the first year annual examination are eligible for promotion to the second year and, so on. However, failure in more than two subjects shall debar him or her from promotion to the next year classes.

16. Internship.— (1) Internship is a phase of training wherein a student is expected to conduct actual practice of pharmacy and health care and acquires skills under the supervision so that he or she may become capable of functioning independently.

    (2) Every student has to undergo one year internship as per Appendix-C to these regulations.

17. Approval of examinations.— Examinations mentioned in regulations 10 to12 and 14 shall be held by the examining authority hereinafter referred to as the university, which shall be approved by the Pharmacy Council of India under sub-section (2) of section 12 of the Pharmacy Act, 1948. Such approval shall be granted only if the examining authority concerned fulfills the conditions as specified in Appendix–D to these regulations.

18. Certificate of passing examination.— Every student who has passed the examinations for the Pharm.D. (Doctor of Pharmacy) or Pharm.D. (Post Baccalaureate) (Doctor of Pharmacy) as the case may be, shall be granted a certificate by the examining authority.

CHAPTER-III
Practical training

19. Hospital posting.— Every student shall be posted in constituent hospital for a period of not less than fifty hours to be covered in not less than 200 working days in each of second, third & fourth year course. Each student shall submit report duly certified by the preceptor and duly attested by the Head of the Department or Institution as prescribed. In the fifth year, every student shall spend half a day in the morning hours attending ward rounds on daily basis as a part of clerkship. Theory teaching may be scheduled in the afternoon.

20. Project work.— (1) To allow the student to develop data collection and reporting skills in the area of community, hospital and clinical pharmacy, a project work shall be carried out under the supervision of a teacher. The project topic must be approved by the Head of the Department or Head of the Institution. The same shall be announced to students within one month of commencement of the fifth year classes. Project work shall be presented in a written report and as a seminar at the end of the year. External and the internal examiners shall do the assessment of the project work.

    (2) Project work shall comprise of objectives of the work, methodology, results, discussions and conclusions.

21. Objectives of project work.— The main objectives of the project work is to—

    (i) show the evidence of having made accurate description of published work of others and of having recorded the findings in an impartial manner; and

    (ii) develop the students in data collection, analysis and reporting and interpretation skills.

22. Methodology.— To complete the project work following methodology shall be adopted, namely:—

    (i) students shall work in groups of not less than *two* and not more than *four* under an authorised teacher;

    (ii) project topic shall be approved by the Head of the Department or Head of the Institution;

    (iii) project work chosen shall be related to the pharmacy practice in community, hospital and clinical setup. It shall be patient and treatment (Medicine) oriented, like drug utilisation reviews, pharmacoepidemiology, pharmacovigilance or pharmacoeconomics;

    (iv) project work shall be approved by the institutional ethics committee;

    (v) student shall present at least three seminars, one in the beginning, one at middle and one at the end of the project work; and

    (vi) two-page write-up of the project indicating title, objectives, methodology anticipated benefits and references shall be submitted to the Head of the Department or Head of the Institution.

23. Reporting .— (1) Student working on the project shall submit jointly to the Head of the Department or Head of the Institution a project report of about 40-50 pages. Project report should include a certificate issued by the authorised teacher, Head of the Department as well as by the Head of the Institution

(2) Project report shall be computer typed in double space using Times Roman font on A4 paper. The title shall be in bold with font size 18, sub-tiles in bold with font size 14 and the text with font size 12. The cover page of the project report shall contain details about the name of the student and the name of the authorised teacher with font size 14.

(3) Submission of the project report shall be done at least one month prior to the commencement of annual or supplementary examination.

24. Evaluation.— The following methodology shall be adopted for evaluating the project work—

(i) Project work shall be evaluated by internal and external examiners.

(ii) Students shall be evaluated in groups for four hours (i.e., about half an hour for a group of four students).

(iii) Three seminars presented by students shall be evaluated for twenty marks each and the average of best two shall be forwarded to the university with marks of other subjects.

(iv) Evaluation shall be done on the following items:

	Marks
a) Write up of the seminar	(7.5)
b) Presentation of work	(7.5)
c) Communication skills	(7.5)
d) Question and answer skills	(7.5)
Total	(30 marks)

(v) Final evaluation of project work shall be done on the following items:

	Marks
a) Write up of the seminar	(17.5)
b) Presentation of work	(17.5)
c) Communication skills	(17.5)
d) Question and answer skills	(17.5)
Total	(70 marks)

Explanation.— For the purposes of differentiation in the evaluation in case of topic being the same for the group of students, the same shall be done based on item numbers b, c and d mentioned above.

COURSE FILE

SUBJECT:	PHARMACOTHERAPEUTICS-I
ACADEMIC YEAR:	2020-2021

NAME OF THE FACULTY:	**Dr. EVANGILEEN**
DESIGNATION:	**ASSISTANT PROFESSOR**
DEPARTMENT:	**PHARMACY PRACTICE**
BRANCH	**PHARM.D**
YEAR	**II YEAR**

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Course File Index

S. No.	ITEM DESCRIPTION
1	VISION AND MISSION
2	COURSE OUTCOMES
3	COURSE SYLLABUS
4	LESSON PLAN
5	ACADEMIC CALENDER
6	TIME TABLE
7	LECTURE NOTES
8	UNIVERSITY QUESTION PAPER
9	INTERNAL QUESTION PAPER
10	INTERNAL QUESTION PAPER WITH ANSWER KEY
11	ASSIGNMENT QUESTION PAPER
12	STUDENT ASSIGNMENT
13	RESULT
14	ATTAINMENT

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COURSE FILE

COURSE DESRIPTION/COURSE INFORMATION SHEET

NAME OF THE DEPARTMENT: PHARM.D

COURSE TITLE	PHARMACOTHERAPEUTICS-I			
COURSE CODE	PH206			
REGULATION	R8		YEAR	II
COURSE STRUCTURE	LECTURES	TUTORIALS	PRACTICALS	CREDITS
	3	1	3	-
COURSE TEACHER	Dr. EVANGILEEN			
NO.OF HOURS ALLOTED PER WEEK	LECTURES	TUTORIALS	PRACTICALS	
	3	1	3	

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1.VISION & MISSION OF THE INSTITUTION

VISION	TO DEVELOP HIGHLY SKILLED PROFESSIONALS WITH ETHICS AND HUMAN VALUES
MISSION	WE ARE COMMITTED TO PROVIDE A POSITIVE AND PROFESSIONAL LEARNING ENVIRONMENT WHERE ALL STUDENTS ARE INSPIRED TO STRIVE FOR EXCELLENCE IN ORDER TO ACHIEVE THEIR POTENTIAL AS DIGNIFIED AND COMPETENT PHARMACISTS,TECHNOLOGY INNOVATORS,MANAGERS AND LEADERS IN GLOBAL SOCIETY THROUGH A COHESIVE NETWORK THE PARENTS,STUDENTS,COLLEGE STAFF AND INDUSTRY.

COURSE HANDOUT

- **PROGRAM OUTCOMES & PROGRAM SPECIFIC OUTCOMES (POs) & (PSOs)**
- **COURSE OUTCOMES(COs)**
- **DETAILED SYLABUS**

Program Outcomes (POs) and (PSOs)

PO 1 Pharmacy Knowledge: Provide high quality, evidence-based, patient-centeredcare in cooperation with patients, prescribers and members of the inter professional health care team

PO 2 Practical Skill: Demonstrate mastery and application of core knowledge and skills in relation to the evolving biomedical, clinical, epidemiological and social-behavioral sciences.

PO 3 Professional Identity: Evaluate practice and care, and promote continuous improvement in one's own patient care and pharmacy services

PO 4 Problem Solving: Demonstrate self-calibration skills and a commitment to the lifelong learning needed to provide high quality care

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PO 5 Communication: Effectively utilize information, informatics and technology to optimize learning and patient care

PO 6 Planning Ability: Demonstrate effective interpersonal written and verbal skills, adapt to socioeconomic and cultural factors as well as situational applications

PO 7 Leadership Skills & Team Work : Demonstrate exemplary professional, ethical and legal behaviors, complying with all federal, state and local laws and regulations related to pharmacy practice

PO 8 Life Long Learning: Demonstrate awareness and responsiveness to the system of health care, effectively utilizing systems of care to provide cost-effective, optimal care

PO9 Pharmaceutical Ethics: Honour personal values and apply ethical principles in professional and social context. Demonstrate behavior that recognizes cultural and personal variability in values, communication and life styles.

PO10 Pharmacist and Society: Apply reasoning informed by the contextual knowledge to asses societal, health, safety and legal issues and the consequent responsibilities relevant to the profession.

PO11 Environment and Society: Understand the impact of professional pharmacy solutions in societal and environmental context and demonstrate the knowledge of, and need for sustainable development.

PSO1: Able to apply the knowledge gained during the course of the program in drug discovery and development, their safety and efficacy and current technologies in Pharmaceutical industry.

PSO 2: Able to apply the knowledge of ethical and management principles required to work in a team as well as to lead a team.

PSO3: Able to do multidisciplinary jobs in the pharmaceutical industries and would be able to write effective project reports in multidisciplinary environment in the context of changing technologies.

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PT-1

CO1: In continuation with the previous year, this subject would have continued describing about the different drugs used for treatment of diseases.
CO2: The students would have learnt about drugs used to cancer, inflammation, respiratory system, GIT, immune system and hormones.
CO3: They would have understood the principles of animal toxicology and bioassay procedures.
CO4: They would have learnt in depth knowledge on cell, macromolecules, cell signaling, DNA replication and cell cycle.

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DETAILED SYLLABUS

S. No.	Topic
01	**Cardiovascular system**
	Hypertension, Congestive cardiac failure, Angina Pectoris, Myocardial infarction, , Hyperlipidaemias , Electrophysiology of heart and Arrhythmias
02	**Respiratory system :**
	Introduction to Pulmonary function test, Asthma, Chronic obstructive airways disease, Drug induced pulmonary diseases
	Endocrine system :
	Diabetes, Thyroid diseases, Oral contraceptives, Hormone replacement therapy, Osteoporosis
03	**General prescribing guidelines for**
	a. Paediatric patients b. Geriatric patients c. Pregnancy and breast feeding
04	**Ophthalmology**
	Glaucoma, Conjunctivitis- viral & bacterial
05	**Introduction to rational drug use**
	Definition, Role of pharmacist Essential drug concept Rational drug formulations
TEXT BOOKS	a. Pathologic basis of disease by- Cotran, Kumar, Robbins b. Text book of Pathology- Harsh Mohan c. Text book of Pathology- Y.M. Bhinde
REFERENCES	a. Clinical Pharmacy and Therapeutics; Second edition; Roger Walker; Churchill Livingstone publication

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LECTURE PLAN

S. No.	Topic	No of Lecture Hours	Teaching Learning Process
	Topic-1		
01	**Cardiovascular system**	30	
	Hypertension	06	Chalk & Board
	Congestive cardiac failure	06	Power Point Presentation
	Angina Pectoris, Myocardial infarction	06	Power Point Presentation
	Hyperlipidaemias	06	Power Point Presentation
	Electrophysiology of heart and Arrhythmia	06	Power Point Presentation
	Topic-2		
02	**Respiratory system :**	20	
	Introduction to Pulmonary function test	04	Chalk & Board
	Asthma	04	Power Point Presentation
	Chronic obstructive airways disease	04	Power Point Presentation
	Drug induced pulmonary diseases	04	Power Point Presentation
	Endocrine system :	21	
	Diabetes	04	Power Point Presentation
	Thyroid diseases	04	Power Point Presentation
	Oral contraceptives	04	Power Point Presentation
	Hormone replacement therapy	05	Power Point Presentation
	Osteoporosis	04	Power Point Presentation
	Topic-3		
03	**General prescribing guidelines for**	20	
	a. Pediatric patients	07	Chalk & Board
	b. Geriatric patients	07	Chalk & Board
	c. Pregnancy and breast feeding	06	Chalk & Board
	Topic-4		

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04	**Ophthalmology**	**10**	
	Glaucoma	**03**	Power Point Presentation
	Conjunctivitis- viral	**05**	Power Point Presentation
	bacterial	**02**	Power Point Presentation
	Topic-5		
05	**Introduction to rational drug use**	**10**	
	Definition, Role of pharmacist	**05**	Chalk & Board
	Essential drug concept Rational drug formulations	**05**	Chalk & Board

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JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD

Revised Academic Calendar 2020-21

For All Constituent & Affiliated Colleges of JNTUH

Pharm. D (Regular) II, III, IV, V Year and Pharm.D (PB) II Year

S. No	Description	Duration	
		From	To
1	Commencement of classwork	01.09.2020	
2	1st Spell of Instructions (including Dussehra Recess, previous year End Examinations)	01.09.2020	12.12.2020 (15 Weeks)
3	Dussehra Recess	19.10.2020	24.10.2020 (1 Week)
4	I-Mid Term Examinations	14.12.2020	19.12.2020 (1 Week)
5	Submission of I-Mid Term Exam Marks to the University on or before	28.12.2020	
6	2nd Spell of Instructions	21.12.2020	20.03.2021 (13 Weeks)
7	II-Mid Term Examinations	22.03.2021	27.03.2021 (1 Week)
8	Submission of Second Mid Term Exam Marks to the University on or before	03.04.2021	
9	3rd Spell of Instructions (including Laboratory classes)	30.03.2021	28.06.2021 (13 Weeks)
10	III-Mid Term Examinations	29.06.2021	03.07.2021 (1 Week)
11	Preparation Holidays/Lab classes / Practical Examinations	05.07.2021	17.07.2021 (2 Weeks)
12	Submission of III-Mid Term Exam Marks to the University on or before	10.07.2021	
13	End / Supplementary Examinations	19.07.2021	31.07.2021 (2 Weeks)

Note: Laboratory classes shall be conducted following the COVID Protocol very strictly.

18/08/21

REGISTRAR

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REGISTRAR
JNT UNIVERSITY HYDERABAD
KUKATPALLY,
HYDERABAD-500 085

DEPARTMENT OF PHARMACY PRACTICE

A.Y 2020-21 TIME TABLE

PHARM.D II YEAR **W.E.F: 01/09/2020** **COLLEGE TIMINGS:9:30AM-3:50PM**

DAYS	9.30AM-10.20AM	10.20AM-11.10AM	11.10AM-12.00PM	12.00AM-12.50PM	12.5PM-1.20PM	1.20P.M-2.10PM	2.10PM-3.00P M	3.00PM - 3.50PM
MON	P.COL-I	CP	P.PHY.	P.THER.-I	L U N C H	LIBRARY/SPORTS		
TUE	P.THER.-I	MICRO	P.PHY	LIBRARY		SEMINARS		CP
WED	P.PHY.	MICRO	P.COL-I	MICRO		MICRO		
THU	P.COL-I	LIBRARY	P.COG&PHYTO	P.COG& PHYTO		P.COG&PHYTO.		
FRI	CP	P.PHY	P.THER.-I(T)	P.COL-I(T)		SEMINARS		
SAT	MICRO	P.THER.-I	P.THER.-I LAB(HOSPITALVISIT)			P.THER.-I LAB (HOSPITAL VISIT)		

Subject Name	Faculty Name	Designation
Pathophysiology	Dr. D Raviprakash	Assistant Professor
Pharmaceutical Microbiology	Dr. Ravinayak	Assistant Professor
Pharmacognosy & Phytopharmaceuticals	S. Sandhyarani	Assistant Professor
Pharmacology-I	Dr. Ayesha Khan	Assistant Professor
Community Pharmacy	Dr. P.Swathi	Assistant Professor
Pharmacotherapeutics-I	Dr. K. Anusha	Assistant Professor
PharmaceuticalMicrobiology -Lab	Dr. Ravinayak	Assistant Professor
Pharmacognosy & Phytopharmaceuticals-Lab	S. Sandhyarani	Assistant Professor
Pharmacotherapeutics-I-Lab	Dr. K. Anusha	Assistant Professor

HOD

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HRT

Menopause is the permanent Cessation of Menes following the loss of ovarian follicular activity.

→ perimenopause is the period immediately prior to the menopause and the first year after the Menopause.

Physiology :-

- The hypothalamic - pituitary - ovarian axis Controls reproductive physiology through the reproductive years.

→ Pathophysiologic changes associated with Menopause are caused by loss of ovarian follicular activity

→ The postmenopausal ovary is no longer the primary Site of estradiol or progesterone Synthesis.

→ As Women age, circulating FSH progressively rises and ovarian inhibin declines.

→ When ovarian function has Ceased, Serum FSH Concentrations are greater.

Clinical Features :-

> Vasomotor Symptoms (hot flushes, night sweats) are Common Short-term Symptoms of estrogen Withdrawal, which usually disappear within 1 to 2 years

> Other Symptoms include Vaginal dryness, dyspareunia, Sexual dysfunction and impaired Concentration and Memory

→ Other Symptoms include Mood Swings, depression, insomnia, arthralgia, myalgia and urinary frequency.

← Long term Morbidity associated with Menopause includes accelerated bone loss and Osteoporosis

Diagnosis:-

> The Diagnosis of Menopause should include a Comprehensive Medical History and physical examination, Complete blood Count and Measurement of Serum FSH.

** When ovarian function has ceased, Serum FSH Concentrations exceed 40 IU/L.

Hormonal Regimens:-

* In the Women with an intact Uterus, hormone therapy Consists of an estrogen plus a progestogen.
* In Women who have undergone hysterectomy estrogen therapy is given
* The study also found increased Coronary heart events, Stroke and pulmonary embolism.
* The oral estrogen - alone arm was stopped early after a Mean of 7 years of follow-up.

Estrogens:

* The oral and transdermal routes are used most frequently.
* Conjugated equine estrogens are composed of estrone sulfate and other estrogens such as equilin and 17 α - dihydroequilin.
* Estradiol is the predominant and most active of endogenous estrogens. Given orally, it is metabolized by intestinal Mucosa and liver, and resultant estrone concentrations are 3-6 times those of estradiol.
* Estradiol pellets (implants) contain pure crystalline 17 β - estradiol and are placed sc into the anterior abdominal wall / buttock. They are difficult to remove.

Regimen	Dose	Route	Frequency
① Conjugated equine estrogens	0.625mg	Oral	OD
② Synthetic Conjugated estrogens	0.625mg	Oral	OD
③ Estropipate	1.5mg	Oral	OD
④ Ethinyl Estradiol	5mcg	Oral	OD
⑤ Intranasal 17 β-estradiol	150mcg	Nasal	OD
⑥ Implanted 17 β-estradiol	50-100mg pellets	Implants	Every 6 Months
⑦ Percutaneous 17 β-	0.04 mg /gel	Transdermal	OD.

Adverse effects of estrogen include
- Nausea, Headache, breast tenderness and heavy bleeding.

* More serious adverse effects include increased risk of Coronary heart disease, stroke, Venous Thromboembolism, breast cancer and gall bladder disease.

* Transdermal estrogen is less likely than oral estrogen to cause nausea, Headache, breast tenderness, DVT.

Progestogens:

> In Women who have not undergone hysterectomy, a progestogen should be added because estrogen monotherapy is associated with endometrial hyperplasia and cancer.

> The Most Commonly used oral progestogens are - Medroxyprogesterone acetate, micronized progesterone and norethisterone acetate. (NETA)

* Four Combination estrogen and progestogen regimens are currently in use.

① Continuous - cyclic :-

Conjugated equine Estrogens [CEE] + Medroxyprogesterone acetate (MPA)

→ results in scheduled Vaginal withdrawal bleeding in approximately 90% of women, but absent in older women.

② Continuous Combined: prevents Monthly bleeding. It may initially cause unpredictable spotting or bleeding;
→ It is best received for women who are at least 2 yrs post Menopause.

③ Continuous long-cycle (Cyclic Withdrawal) :-
Reduces Monthly bleeding. Estrogen is given daily and progestogen is given six times yearly for 12 to 14 days resulting in six periods/year.

④ Intermittent - Combined :- prevents monthly bleeding. It Consists of 3 days of estrogen therapy alone followed by 3 days of Combined estrogen and progestogen, which is then repeated without interruption.

Regimen	Doses
① Oral Continuous - cyclic CEE + MPA	0.625 + 5mg, 0.625 + 10mg
② Oral Continuous - Combined regimens. CEE + MPA	0.625mg + 2.5mg ; 0.625mg + 5mg ; 0.45 mg + 2.5mg
③ Transdermal Continuous cyclic 17β- Estradiol + NETA	50mcg + 0.14mg ; 50mcg + 0.25mg
④ Transdermal Continuous - Combined 17β+ Estradiol + NETA	50mcg + 0.14mg ; 50mg + 0.25mg + 0.125mg.

Adverse effects of progestogens are irritability, depression, Headache, Mood swings, fluid retention and sleep disturbances

* ANDROGENS:-

→ The Therapeutic use of testosterone in women although Controversial, but it is becoming more wide spread.

* Testosterone treatment should not be given to post menopausal women who are not receiving Concurrent estrogen until Completion of studies on the use of testosterone without estrogen.

* Absolute Contraindication to androgen therapy include pregnancy or lactation and known or Suspected androgen-dependent neoplasia

ADR's Virilization, fluid retention and potentially adverse lipoprotein lipid effects.

ESTROGEN - RECEPTOR MODULATORS:-

- Selective estrogen-receptor Modulators prevent bone loss and Vertebral fractures.
- They bind to estrogen receptor and function as tissue specific estrogen antagonists / agonists.

TIBOLONE :-

- It has combined estrogenic, progestogenic and androgenic activity.
- → Its effects depend on Metabolism and activation in peripheral tissues.
- It protects against bone loss and reduces the risk of Vertebral fractures
- → It reduces total Cholesterol, TG, Lipoprotein and Unfortunately, HDL Concentrations
- It may increase Cardiovascular risk, breast Cancer risk and endometrial Cancer risk.

Benefits of HRT:

- → Most women with Vasomotor Symptoms need hormone treatment for less than 5yrs, without treatment, hot flushes usually disappear within 1-2yrs. Hormone therapy can usually be tapered and stopped after about 2-3yrs
- → Estrogen is more effective than any other therapy in relieving Vasomotor Symptoms, all and all types and routes of Systemic administration are equally effective in a dose-dependent fashion. If treatment can be tapered and stopped within 5yrs, no evidence of increased risk of breast Cancer is seen.

* Alternative to estrogen for hot flashes are tibolone, Venlafaxine, paroxetine, fluoxetine Clonidine gabapentin, megestrolacetate.

- For women with Contraindications to hormone therapy, Selective Serotonin reuptake Inhibitors and Venlafaxine are considered by some to be first line therapy, but efficacy of Venlafaxine beyond 12 weeks has not been shown.

> Significant Vaginal dryness because of Vaginal atrophy requires use of local or systemic estrogen therapy. It can be treated with topical estrogen cream, tablets, or vaginal ring.

> Concomitant progestogen therapy generally is unnecessary with low-dose micronized 17β-estradiol, but regular use of conjugated equine Estrogen Cream and other products.

> Hormone therapy should be considered for Osteoporosis prevention only in women at Significant risk for Osteoporosis who cannot take non estrogen regimens.

OSTEOPOROSIS :-

Osteoporosis is a skeletal disorder characterized by compromised bone strength predisposing individuals to an increased fracture risk.

Categories of Osteoporosis include: (1)

(i) post - Menopausal Osteoporosis
(ii) Age - related Osteoporosis
(iii) Secondary Osteoporosis

Etiology

- Many Modifiable and non modifiable factors are associated with an increased risk of developing Osteoporosis and related bone fractures.
- Four strongest factors that predict fracture risk are low BMD, prior fragility fracture, age and family history of Osteoporosis.
- Women with five or More risk factors increase great fracture risk.

Epidemiology :-

- The exact prevalence is unknown, but experts estimate that nearly half of Americans aged 50 years & older or approximately 44 million people have low bone Mass.
- In the late 1990's, based on peripheral bone Mineral density Measurements, 40% of postmenopausal Women had Osteopenia and 7% had Osteoporosis.

Pathophysiology :-

- Bone loss occurs when bone resorption exceeds bone formation, usually from high bone turnover where the

number and/or depth of bone resorption sites greatly exceed the rate and ability of Osteoblasts to form new bone.

(2)

✓ In addition to reduced bone Mineral density (BMD) bone quality and structural integrity are impaired because of the increased quantity of immature bone that is not yet adequately Mineralized

✓ Age-related Osteoporosis occurs Mainly because of hormone, Calcium and Vitamin-D deficiencies leading to accelerated bone turnover and reduced osteoid ost formation

✓ Drug-induced Osteoporosis may result from Systemic Corticosteroids (prednisolone dose greater than 7.5mg/day), Thyroid Hormone replacement Some anti-epileptic drugs, depot Medroxyprogesterone acetate and other agents.

Clinical Features:

- Many patients are unaware that they have Osteopo and only present after fracture.
- Features can occur after bending, lifting, or falling or independent of any activity.
- The Most Common Osteoporosis related fractures involve the Vertebrae, proximal femur and distal radius.
- 2/3rds of the patients with Vertebral fractures a

The remainder present with Moderate to Severe back pain that radiates down a leg after a new Vertebral fracture.

Multiple Vertebral fractures decrease height and Sometimes Curve the spine (kyphosis) with or without Significant back pain.

Diagnosis :-

Major risk factors include current Smoker, low bod Weight, history of osteoporotic fracture in the first degree relative and personal history of low-trauma fracture as an adult.

- Completely physical examination and lab analysis are needed to rule out Secondary Causes and to assess kyphosis and back pain.

- Laboratory testing may include
  - > Complete blood Count
  - > LFT
  - > Serum biomarkers
  - > Creatinine
  - > Urea Nitrogen
  - > Calcium,
  - > phosphorus
  - > alkaline phosphatase
  - Albumin
  - TSH
  - Free testosterone
  - 24 hr urine Concentrations of Calcium and phosphorus.

- Measurement of Central BMD with dual-energy X-ray absorptiometry (DXA) is the gold standard for osteoporosis diagnosis
- Normal bone mass is a T-score greater than -1;
- Osteopenia is a T-score of -1 to -2.4 and Osteoporosis is a T-score at or below -2.5.

Treatment:

Pharmacological Therapy:

Anti-Resorptive therapy:

1. **Calcium:**

Calcium should be ingested in adequate amount to prevent Secondary hyperparathyroidism and bone destruction

> Calcium carbonate is the salt of choice because it contains the highest Concentration of elemental Calcium and is least expensive

* It should be ingested with Meals to enhance absorption

> Calcium citrate absorption is acid independent and need not to be taken with Meals.

Dosing: Single dose of 600 mg

ADR's: Constipation, flatulence or upset stomach

3) Vitamin - D supplementation :

- Vitamin - D deficiency results from insufficient intake decreased sun exposure, decreased skin production & liver and renal Metabolism.
- Supplemental Vit - D Maximizes intestinal Calcium absorption and has been shown to increase BMD.

Ex: Calcitrol, alfacaladol

(5)

C) Bisphosphonates

- Alendronate, risedronate and oral Ibandronate are FDA approved for prevention and treatment of post menopausal Osteoporosis.
- IV Ibandronate and Zoledronic acid are indicated only for treatment of post Menopausal women.

* All Biphosphonates are poorly absorbed.
* Each oral tablet should be taken in the Morning with atleast 6oz of plain tap water (not coffee, juice / Mineral water / no Milk) atleast 30 minutes before Consuming any food.

4) Thiazide Diuretics

Thiazide Diuretics ↑ Renal Calcium reabsorption two Controlled trials demonstrated small increase in bone mass.

Prescribing Thiazide diuretics solely for Osteoporosis is not recommended but is a reasonable Choice for patients with Osteoporosis who require a diuretic and pt's on Glucocorticoids with a 24 hr urinary Calcium excretion > 300 mg.

ANTI RESORPTIVE THERAPY

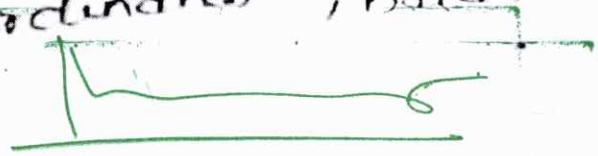
Drug	Dose	MOA	ADR's
* CALCIUM			
Calcium Carbonate	200 - 1200mg	When used as calcium supplement it acts by directly ↑ calcium stores within the body. It inhibits the action of pepsin by ↑ the pH and thus absorption.	Constipation, flatulence,
2. Calcium Citrate	1500 - 600mg	Supplemental source of Maximize intestinal Calcium absorption & has been shown to ↑ BMD	Dry Mouth, Metallic taste, Vomiting
* Vitamin - D.			
D_3 - Cholecalciferol	400 - 800 unit/days		
D_2 - Ergocalciferol			
* Bisphosphonates			
- Alendronate	10mg daily PO	Bisphosphonates bind to hydroxyapatite in bone and decrease resorption by inhibiting osteoclast adherence to bone surfaces.	Nausea, Abdominal pain, dyspepsia
- Ibandronate	150mg PO monthly		Esophageal and duodenal ulceration
- Risedronate	35mg PO weekly		
- Zoledronic acid	5mg IV. infusion Yearly		

* RANK ligand Inhibitor			
- Denosumab.	60mg SC every 6 Months	Inhibits Osteoclast formation and increases osteoclast apoptosis (7)	- Back pain, arthralgia, eczema, Cellulitis * CI in pts with Hypocalcemia.
* Estrogen Agonist / Antagonist			
- Raloxifene	60mg daily	The Enhanced BMD effects from CT and Combined Estrogen progestin hormonal therapy reduce fracture risk.	Hot flushes, leg cramps and Muscle Spasms
- Bazedoxifene with Conjugated Estrogen	20mg + 0.45mg CCE daily		
* Calcitonin	Intranasal dose is 200 unit daily SC - 100 units	Calcitonin is released from the thyroid gland when Serum Calcium is elevated. Calcitonin directly has direct effect on the antagon on Osteoblasts by promoting bone formation	Hypocalcemia Symptoms. Flushing, trouble breathing, nausea, vomiting, Hypocalcemia Symptoms
* Testosterone	Methyl testosterone 1.25 or 2.5mg		
Anabolic Therapy:			
Teriparatide	20mcg SC	Increases bone formation the bone osteoblast	

PRINCIPAL
AVANTHI INSTITUTE OF PHARMACEUTICAL SCIENCES
Gunthapally (V), Abdullapurmet (M),
R.R. Dist. Telangana

Non-pharmacological Treatment:

- All individuals should have balanced diet with adequate intake of dietary sources calcium and Vitamin - D
- Caffeine intake should be ideally limited to 1000 servings per day
- Smoking Cessation
- Weight - bearing aerobic and strengthening exercise can decrease the risk of falls and fractures by improving Muscle strength, coordination, balance



— pulmonary function test. —

(or)

Lung function test

* Types of pulmonary fun test :-

1. Static lung function test :- volume of air that goes in & out of the lungs

2. Dynamic lung function test :- (Depends upon time) the rate & at which air goes in & out of lungs

Static lung fun test is catagrized into 2 types

Static lung fun test

(i) Static lung volume
- → Tidal volume [V_T / TV]
- → Inspiratory reserve vol [IRV]
- → Expiratory reserve vol [ERV]
- → Residual vol [RV]

(ii) Static lung capacity
- → total lung capacity (TLC)
- → vital capacity (VC)
- → Inspiratory capacity (IC)
- → functional residual capacity. (FRC)

(i) Tidal volume :- The vol of air that goes in & out of lungs at quit respiration.

T_V / V_T = 500ml / 0.5L

(ii) Inspiratory reserve vol :- Maximum additional amount of air that is inspired forcefully after a normal inspiration

IRV = 3300ml.

(iii) Expiratory reserve vol:- Maximum amount of air forcefully expiratory after a normal expiration.

ERV = 1000ml / 1L

(iv) Residual vol:- The amount of air that is remaing in the lungs after maximal force fully expiration.

Residual vol = 1200ml. / 1.2 L.

II. Static lung capacity :-

(i) Total lung capacity :- Maximum amount of air that accumilated in lungs (or) sum of all lung volumes.

$TLC = V_T + IRV + ERV + RV$

$= 500 + 3300 + 1000 + 1200 = 6000ml / 6L.$

(ii) Vital capacity :- Maximum amount of air that can be expelled (or) expecied force fully after a Deep inspiration.

$VC = IRV + TV + ERV$

$= 3300 + 500 + 1000 \Rightarrow 4800ml$

(iii) Inspiratory capacity :- maximum amount of air that can be inspired force fully after a normal expiration.

$IC = IRV + TV$

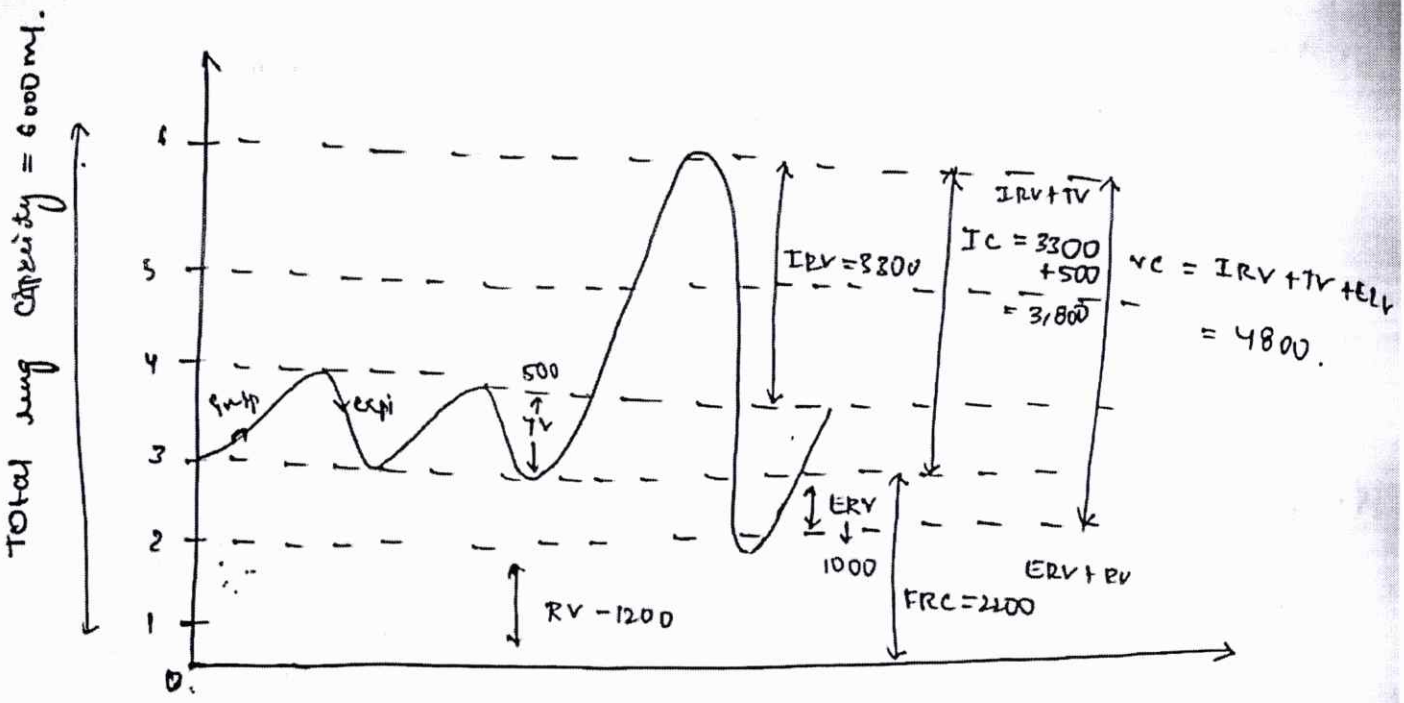
$= 3300 + 500$

$= 3800ml$

(iv) Functional residual capacity :- Vol of air that is remaing in the lung after a normal expiration.

$FRC = RV + ERV \Rightarrow 1200 + 1000 \Rightarrow 2200ml$

Graph Denoting normal lung Volumes & Capacities.



2. Dynamic lung function test [DLFT's]:-

[It Depends upon time]

The rate at which air goes in & out of lungs

It is classified into 5 types

(i) forced Vital capacity :- (FVC)

(ii) forced expiratory volume con time Vital capacity (FEV)

(iii) Respiratory minute volumes [RMV]

(iv) Maximum Breathing Capacity (or) Maximum ventilation vol. (MBC) (or) (MVV)

(v) peak expiratory flow rate [PEFR]

(i) Forced vital capacity :- vol of air that can exhaled forced fully & rapidly after Deep inspiration.

(ii) Forced expiratory vol (or) time vital capacity :- vol of air which can be expired forcefully in a given unit of time.

(iii) Respiratory Minute volume :- vol of air breaths in/out Every minute. 500.

RMV = 75 TV x 1200 ⇒ 6000ml

(iv) MBC (or) MVV :- Maximum vol of air which can be breaths in & out by forced full respiration in one minute.

that is 150 - 170 lites.

(v) PEFR :- Maximum rate at which air can be Expired after a Deep inspiration

it is about 400 liters.

HYPERLIPIDEMIA

Definition :- Hyperlipidemia is defined as elevated total Cholesterol, Low-density lipoprotein (LDL) cholesterol, or triglycerides; a low high-density lipoprotein (HDL) Cholesterol; or a Combination of these abnormalities.

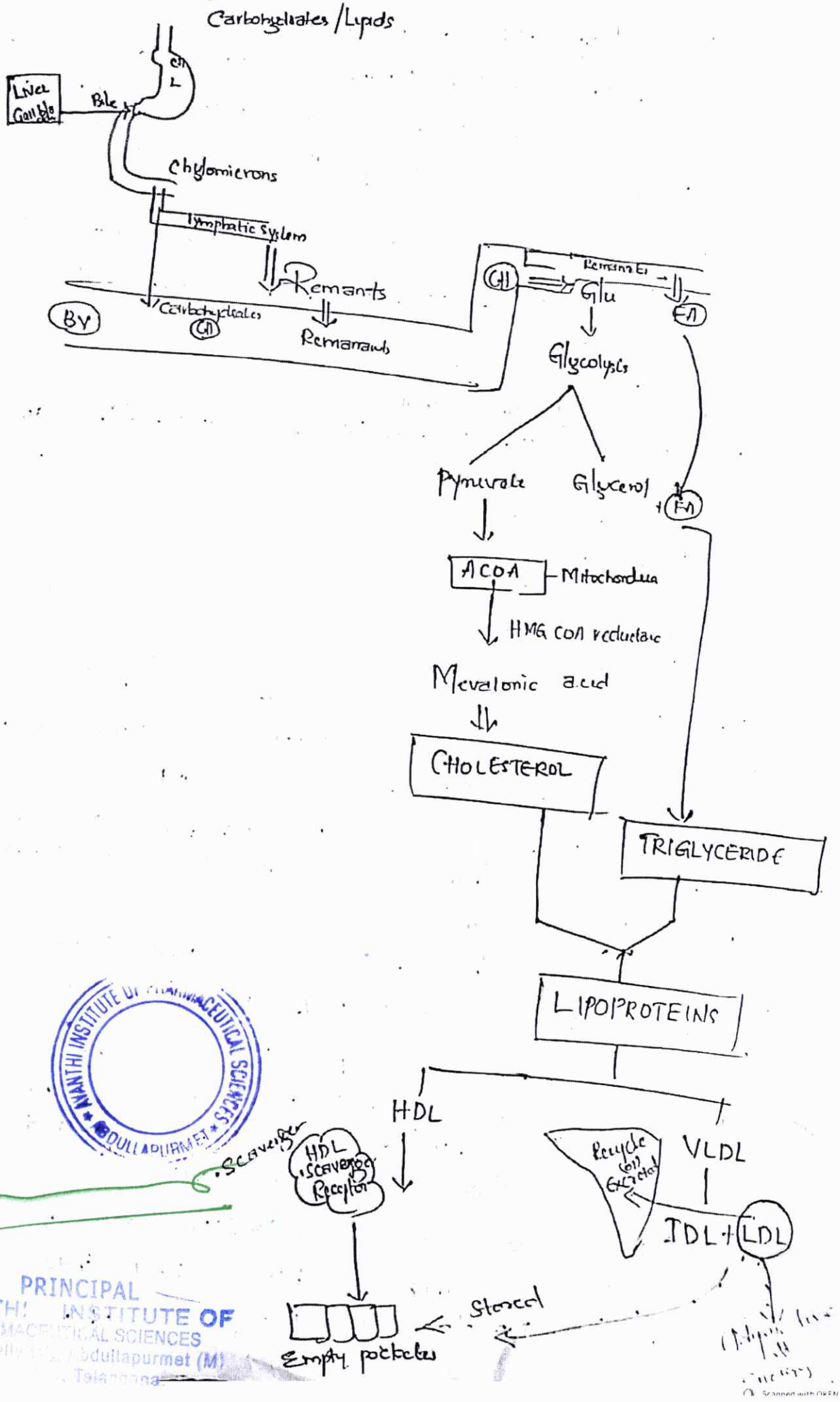
Etiology :- The three Major classes of lipoproteins found in Serum are LDL, HDL, VLDL. IDL resides between VLDL and LDL.

- → Smoking
- → Drinking a lot of alcohol
- → Eating foods that have a lot of saturated fats or transfat.
- → Sedentary work
- → Inheriting genes
- → Being over weight
- → Diabetes
- → Menopause in women

Epidemiology :- Total cholesterol increases throughout life in Men and women, representing an atherogenic pattern Characteristic of Western Society diets.

- → More than 50% or nearly 105 Million American adults over 20 yrs of age have total Cholesterol levels of 200 mg/dl or higher.
- → Only about 1/3rd are aware that they have Hypercholesteremia and 12% were on therapy.
- → The National Cholesterol Education Program estimates that only 26% of patients have an optimal LDL Cholesterol and that large number of patients are either undertreated or undertreated.
- → In the earlier Survey from 1976-1980 the number of Americans with a desirable blood cholesterol level <200 mg/dl has risen to 49% from 45%.

Pathophysiology :-



* Cholesterol, triglycerides and phospholipids are transported in the blood stream as complexes of lipid and proteins known as lipoproteins.
* Elevated total and LDL Cholesterol and reduced HDL Cholesterol are associated with development of CHD.
* The lipoproteins are classified into primary and secondary forms, the primary forms include Chylomicrons, LDL, IDL, VLDL, etc.
* Secondary forms of Hyperlipidemia also exist and several drug classes may elevate lipid levels.
  Ex: progestins, thiazide diuretics, Glucocorticoids, β-blockers etc.

Clinical features:

* Pancreatitis
* Hepatosplenomegaly
* Ex. SOB due to Obese
* CAD.
* Hypertension
* Diabetes.
* Heart / cardiac related Complications

Diagnosis:

* Medical history Interview
* Lipid profile
* physical Examination — for presence or absence of Cardio-Vascular related problems.

Treatment:-

(1) HMG Co-A Reductase Inhibitors

* The step is Inhibition of HMG-CoA Reductase
* Atorvastatin, Pravastatin, Simvastatin, Lovastatin, Fluvastatin, Rosuvastatin etc.
* These are Analogs of HMG, the precursor of Cholesterol and form strong affinity for enzyme

and inhibit HMG CoA reductase.

* Rosuvastatin and Atorvastatin are most potent Cholesterol lowering agents.

II Increase in LDL reception: Depletion of intracellular Cholesterol causes the cell to increase the number of specific cell-surface LDL receptors that bind and internalize circulating LDL's. Thus the end result is reduction in plasma cholesterol both by lowered Cholesterol synthesis and by increased Catabolism of LDL.

(B) Niacin (Nicotinic acid)

Niacin can reduce LDL levels by 10 to 20 percent and is the most effective agent for increasing HDL levels.

* Niacin can be used in combination with statins and a fixed-dose combination of Lovastatin and long-acting niacin is available.

MOA:- Niacin strongly inhibits hormone lipolysis in adipose tissue the primary producer of circulating free fatty acids.

* The liver normally utilizes these circulating fatty acids as a major precursor for triacylglycerol synthesis.

(C) The Fibrates: Fenofibrate, Gemfibrozil.

These are derivatives of fibric acid that lower serum triglyc. triacylglycerol and increase HDL levels.

Mech: peroxisome proliferator activated receptor PPAR's

→ By binding of drugs with PPARs, regulate the gene expression, in which fibrate-Mediated gene expression ultimately leads to decreased TG Conc. (3)

(D) Bile acid Binding Resins:

Ex: Cholestyramine, Colestipol, Colesevelam.

These are anion-exchange resins that bind the negatively charged bile acids and bile salts in small intestine. The resin bile acid complex is excreted in the feces, thus preventing the bile acid from returning to liver by enterohepatic circulation.

(E) Cholesterol Absorption Inhibitors:

* Ezetimbe; selectively inhibits intestinal absorption of dietary and biliary cholesterol in small intestine, leading to a decrease in delivery of intestinal cholesterol to liver.

→ This causes a reduction of hepatic cholesterol stores and an increase in clearance of cholesterol from blood.

* Ezetimide lowers LDL cholesterol by 15% and TG by 6% and it increases HDL by 1-3%.

ALGORITHM :

CHD present
or
Other Atherosclerotic Symptoms like stroke, Ischemic attack

← NO

Type - 2 Diabetes
or
Type 1 Diabetes
> 10 years.

↓ Yes.

↓ Yes.

1. Non-pharmacological interventions
2. Statins
3. Add resin
4. Life style & drug education

1. Non-pharmacologic intervention
2. Statin
3. Add resin
4. Addition of fibrate
5. Life style & drug education

NO

Therapeutic Goals
(1) LDL - C <100mg/dl
(2) TG < 150mg/dl
(3) HDL ≥50mg/dl (♀)
≥ 40mg/dl (♂)

Statins are first-line therapy for both Menopausal ♀ & LDL lowering

Primary Prevention

Low Risk
* LDL <130mg/dl
HDL > 40mg/dl
TG < 150mg/dl
* Screening Lipid

Intermediate Risk
LDL - 131 - 160
HDL 35 - 40
TG 151 - 200
1. Non-pharmacologic
2. If fails & > 40.
3. Lipid Abnormalities
A. Statin
B. Niacin
C. Resin

Medium High Risk
LDL - 161 - 190
HDL - 25 - 35
TG - 251 - 400
1. Non-pharmacological
2. If fails > 35
A. Statin
B. Niacin
C. Fibrate

High Risk
LDL - 190 mg/dl
HDL - 25 mg/dl
TG - 400 mg/dl
1. Non pharmacologic AND
2. Add Drug Therapy
A. Statin
B Niacin
C. Fibrate

RATIONAL DRUG USE

→ Definition
→ Role of pharmacist
→ Essential drug Concept
→ Rational drug formulations.

Definition :- Rational drug use can be defined as the usage of appropriate drug with proven Safety & efficacy for the right patient in the appropriate dose and dosage form at proper intervals of time at low cost.

Criteria for Using Medicine :-

→ Appropriate indications
→ Appropriate drug
→ Affordable
→ Appropriate administration, dosage & duration
→ Appropriate patient
→ Appropriate patient information.

Irrational Use of Drugs :-

→ Self Medication, easy accessibility of drugs, rampant usage medicines by the prescribers are some of the reasons for the irrational usage of drugs.

3 types of rational use of drugs :-

(a) Diagnosis → inadequate examination, incomple Communicat
(b) Prescription → lack of documented med. History
→ inadequate laboratory
(c) Dispensing

Prescription :
→ under prescribing
→ Incorrect prescribing
→ Extravagent prescribing
→ over prescribing
→ Multiple prescribing

Dispensing :
→ Wrong interpretation of drug
→ Retrieval of wrong ingredients
→ Inaccurate counting, compounding or pouring
→ Packaging,
→ poor quality packaging mate...

* Rational drug use can be promoted by practicing the concept of essential drugs, procuring adequate training.

* Reasons for irrational use of drug :-
→ to Unbiased information
→ Blindly believing the Medical representatives who are not properly trained

* Some of the drugs which are irrationally used
1) ASPIRIN - OTC Medication most Commonly used. Irrational use arises due to over dose, which will cause GI bleeding & ulceration, liver toxicity
Paracetamol

2) SEDATIVES AND HYPNOTICS :- Eg: Diazepam, Alprazolam
↓
prescribed for insomnia

→ Irrationally used due to usage of these, even after Completion of regimen results in drug dependence or addiction.

OBSTACLES IN RDU :-
→ prescriber gets benifited by prescribing more drugs.
→ Easy availability of schedule H drugs
→ No proper training or education to the prescriber

Measures to promote RDU

→ Educational Measures — Inform < Health providers / Consumers
→ Regulatory Measures — Market or practice control / Enforcement
→ Managerial Measures — Information systems / STGs / Drug supply / Lab capacity

Drug use Indicators

* **Prescribing Indicators**
  → Avg no. of drugs per prescription
  → % of drugs prescribed by generic names
  → % time an antibiotic is prescribed

* **Patient care Indicators**
  → Avg. Consultation time
  → Avg dispensing time
  → pt. knowledge of correct dosage

* **Facility Indicators**
  → Availability of key drugs
  → Availability of copy of essential drugs list or formulary

* **Role of Pharmacist in RDU :-**
  → Legally pharmacist is not authorized to prescribe but can play a major role in promoting rational drug use.
  → As the pharmacist involves in selection and procurement of drugs, the drug should be in accordance with essential drug concept & Cost effectively.
  → Regular monitoring of stocks.

Concept of Essential Medicines:

→ Essential Medicines are those that satisfy the priority of health care needs of the popln.

→ They are selected based on relevance, evidence on efficacy, safety and comparative cost-effectiveness.

→ The essential medicine list contains limited cost effective and safe medicines, but the open pharmaceutical market is flooded with large number of medicines many of which are of doubtful value.

→ The essential medicine concept has been accepted world wide as a powerful tool to promote health equility.

* Rational drug formulations
  - proper dosing
  - Solubility

Essential drug Concept:

WHO introduced the EDC in 1977

→ Those drugs that satisfy the priority of healthcare needs of the population

Selection on the basis of
* public health relevance
* Evidence on efficacy & Safety
* Comparative cost effectiveness

→ Should be available within the context of functioning health systems:
> At all times
> In adequate amounts
> In appropriate dosage forms
> With assured quality &
> With adequate information
> At an affordable price to individual & Community

EDC includes
* Drug name
* Dosage forms
* Dosage strength
* Indications

Includes Single formulations

→ fixed drugs are included only if its efficacy is proven to be higher
> Anti-Tubercular Agents
> Anti-malarial Agents

Objectives of EDC

- Introduction to clinical pharmacology
- Terminologies and abbreviations used in pharmacology
- Drug nomenclature

Use of Essential Drugs:-

- Development of treatment guidelines
- Development of National drug formularies
- Drug financing
- Drug donations
- Research priorities
- Drug needed for specific diseases.

Key factors for development of a Essential Medicines list:-

- Establishing a transparent process for creating and updating the list of essential Medicines, provide a voice for key stakeholders, but ensure a scientific evidence based process.
- Making the list available in all health care facilities / health care providers in both printed and electronic format.

Hazards of IDU

1. Ineffective & Unsafe treatment
   - > over-treatment of mild illness
   - > Inadequate treatment of serious illness

- Prolongation of illness
- Distress & harm to patient

Increase the cost of treatment

Increased drug resistance - misuse of ant infective drugs

↑ ADE

↑ Morbidity and Mortality.

Appointments

-: Electsophysiology of Heart :-

The Cardiac Cell at Rest :

* Ions move across cell membranes in response to electrical and Concentration gradients.
* The Normal Cardiac cell at rest maintains a transmembrane potential approximately 80 to 90 mV
* The gradient is established by pumps, especially the Na^+, k^+ - ATPase and fixed anionic charges within cells.
* Na^+ channels, which allow Na^+ to move along this gradient, are closed at negative transmembrane potentials.
* Specific type of k^+ Channel protein is in an open Conformation at negative potentials. Hence k^+ can move through these Channels across the cell membrane at negative potentials.

* Na^+ Channel Opening Initiates the Action Potential :-

If an atrial or Ventricular cell at rest is "depolarized" above a threshold potential, Sodium Channel proteins change Conformation from the CLOSED (resting) state to the OPEN (Conducting) state, allowing up to 10^7 Na^+ ions per Second to enter each cell and Moving the transmembrane potential towards +65 mV. This pattern of Na^+ ion Movement lasts only about a Millisecond, after which the Na^+ Channel protein rapidly Changes Conformation from "open" to an

A P R

Appointments "inactivated", non Conducting state. The Changes transmembrane potential generated by the inward Na^+ current produce, in turn a series of openings of other channels.

When a cell from the epicardium System is depolarized by the Na^+ current, "transient outward Channels results in an outward or repolarizing Change Conformation to enter an open or Conducting state. Since the transmembrane potential at the end of phase '0' is positive, the opening of transient outward Channels results in an outward or 'Repolarizing' k^+ current which Contributes to the phase 1; Transient outward k^+ channels inactive rapidly.

* During the "phase-2" plateau of a normal cardiac action potential, inward depolarizing currents primarily through k^+ channels

Differing Action Potential Among Cardiac Cells:

The action potential and the currents must be Modified for certain cell-types.

Ex As a result of, Vagal stimulation, which further Shortens k^+ Atrial action potentials

Maintenance of Intracellular Homeostasis:-

With each action potential, the interior ce gains Na^+ ions or loses k^+ ions.

- An ETP requiring Na^+-k^+ exchange Mechanism or pump is activated in most cells to Maintain intracellular homeostasis.

Appointments This (Sodium) Na^+, k^+ - ATPase extrudes 3 Na^+ ions for every 2 k^+ ions shuttled from the exterior of the cell to interior

Normally, intracellular Ca^{+2} is maintained at very low levels.

* The increase in intracellular Ca^{+2} then triggers Ca^{+2} dependent Contractile process.

** Removal of intracellular Ca^{+2} occurs by both an ATP-dependent Ca^{+2} pump and an electrogenic $Na^+ - Ca^{+2}$ exchange Mechanism on the cell Surface, which exchanges 3 Na^+ ions from the exterior for each Ca^{+2} ion extruded.

Impulse Propagation and the Electrocardiogram :-

Normal cardiac impulses Originate in the Sinus node. Impulse propagation in the heart depends on two factors (i) the Magnitude of the depolarizing Current & (ii) Geometric Cell-Cell electrical Connection. Cardiac Cells are relatively long and thin and Well Coupled through specialized gap junction proteins at their ends.

⇒ Once impulses leave the Sinus node, they propogate rapidly throughout the atria resulting in atrial systole and the 'P' wave of the surface ECG.

⇒ Propogation slows markedly through the AV node, where the inward current is Much smaller than the Nat current in atria or Ventricles.

⇒ This conduction delay allows the atrial Contraction to propel blood into the Ventricle thereby optimizing cardiac output.

Appointments ⇒ Once impulses exit the AV node, they enter the conducting system, where AP curves are larger than in any other tissue. Hence propagation is faster and manifests as QRS Complex on ECG, and spread from the endocardium to the epicardium, stimulating Ventricular Contraction.

* Ventricular repolarization results in the T wave of ECG.

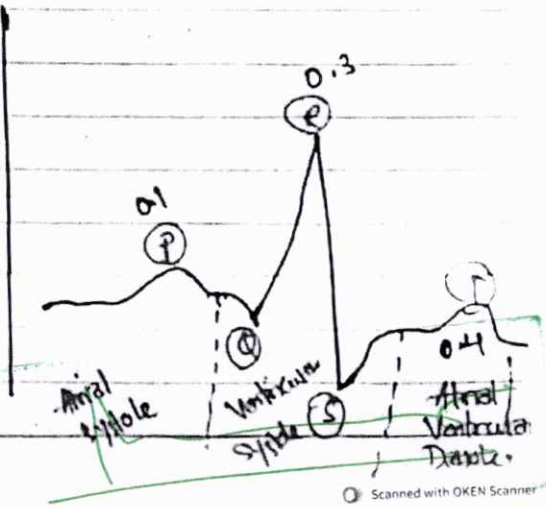
ECG rough Guide:

** Heart rate reflects Sinus node Automaticity
** PR - interval duration reflects AV nodal Conduction time
*** QRS duration reflects Conduction time in Ventricle
**** QT interval is a Measure of Ventricular action potential duration.

** CARDIAC CYCLE:

The Sequence of Changes in the pressure and flow in the heart chamber and the blood vessels in between the two subsequent Contractions is known as Cardiac Cycle.

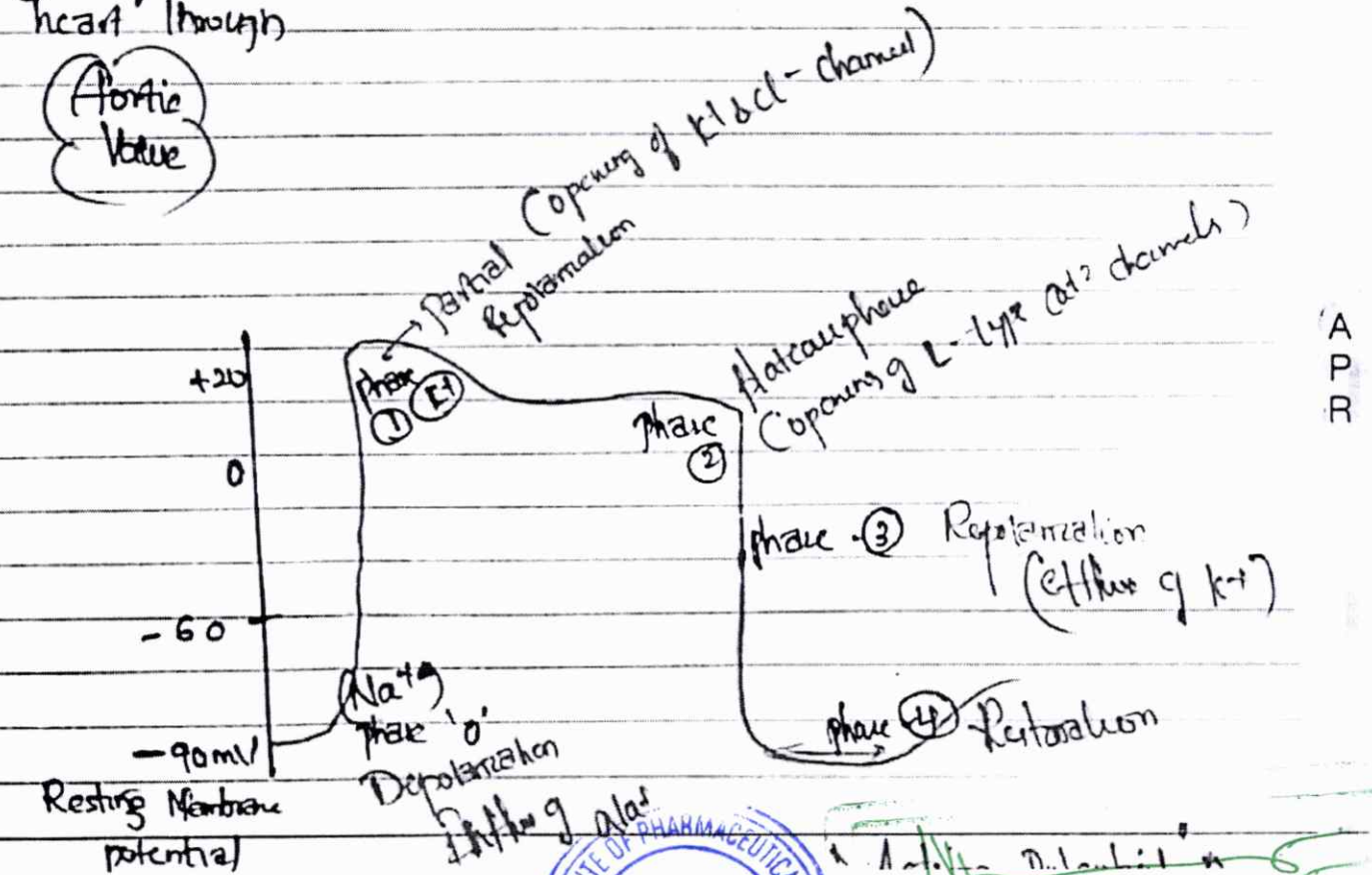
* Normal duration - 0.8 Seconds at heart rate 75/min.
* Atrial Systole - 0.1
* Ventricular Systole - 0.3
* Atrial Diastole - 0.7
* Ventricular Diastole - 0.5



Appointments

Flow Chart of Cardiac Cycle

(Superior Vena Cava / Inferior Vena Cava) → HEART → RA → Tricuspid Valve → RV → Pulmonary Artery → Lungs → Pulmonary Vein → Left Atrium → Mitral Valve → Left Ventricle → Aorta → All of the heart through Aortic Valve



CONGESTIVE HEART FAILURE / CONGESTIVE CARDIAC FAILURE

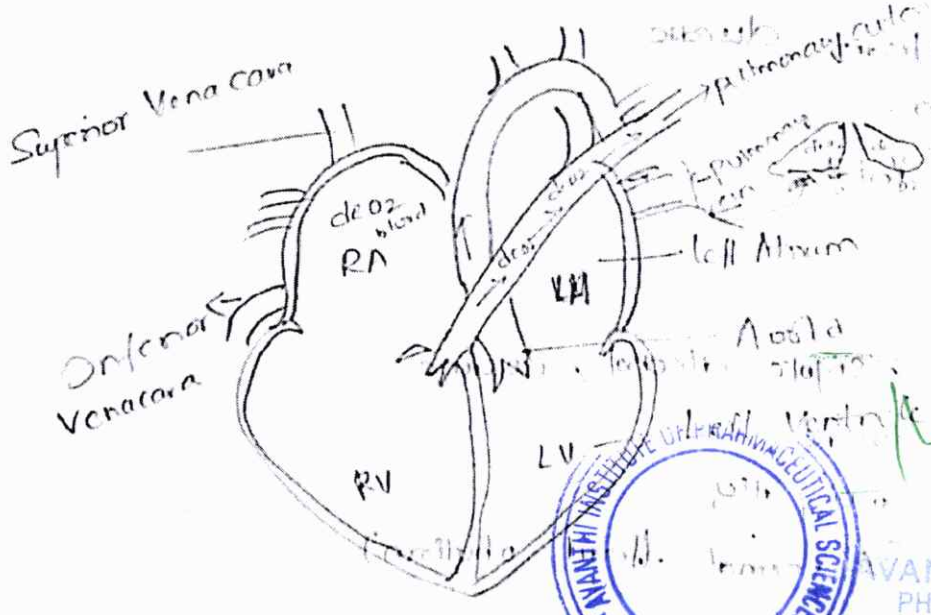
(CHF) (CCF)

① **DEFINITION:-** CHF is defined as a physiologic state in which the heart is unable to pump enough blood to meet the metabolic needs of the body at rest or during exercise even though filling pressures are adequate.

⇒ The name CHF & CCF doesn't mean heart has actually "failed" or stopped but mean one or more chambers of heart has failed to keep up with the Volume of blood flowing through them.

⇒ CHF is a serious, progressive condition that is usually chronic and can be life threatening.

⇒ Failure could begin on the "LEFT" or "RIGHT SIDE" of your heart or both sides may fail at the same time "[BIVENTRICULAR HEART FAILURE]"



SYSTOLIC DYSFUNCTION (2)

[Reduced ejection fraction (REF)]

→ Heart Muscles are too weak, the Ventricles stretch out (enlarge, floppy, dilated) and failed to Contract efficiently. less blood is pumped out.

DIASTOLIC DYSFUNCTION

→ [Preserved ejection Fraction (PEF)]

Heart Muscles become stiff, thick, rigid, inelastic so, that they no longer fill properly (Can not relax properly during diastole) less blood in Vent

→ less blood to body during Contraction.

Ejection Fraction: Amount of blood being pumped out of the left Ventricle each time it Contracts. (Shows how well your Ventricles are pumping.

Normal EF = $\frac{\text{Stroke Volume}}{\text{Total Volume}} \Rightarrow \frac{70ml}{110ml} \Rightarrow 64\%$

Normal range is 50-70 %

Causes of CHF

Systolic dysfunction

- → Ischemic Heart disease
- → Hypertension
- → Large salt intake
- → Diabetes
- → Myocarditis
- → Over weight + Smoke alcohol, Cocaine
- → Heart Valve disease
- → Dilated cardiomyopathy.
- → Arrhythmias (Abnormal Heart rhythm)

Diastolic Dysfunction:

- CAD
- HTN
- MI
- Cardiomyopathy (Hypertrophic & Restrictive)
- Constrictive Myocarditis
- Cardiac tamponade
- Myocarditis
- Aortic Stenosis
- Amyloidosis
- Hemochromatosis

Pathophysiology

Impaired pump function → Venous pressure ↑ because inadequate pumping cause blood to pool in venous system ⇒ Cardiac muscle forces dilate in response to Venous pressure, allowing More blood to enter the heart

↓ Arterial pressure ↓ cause each contraction pump less blood, decreasing forward blood flow

↓ Decreased renal perfusion

↓ Activation of Renin-angiotensin Aldosterone System & ADH

↓ Water Retention

↓ Increased blood Volume

↓ preload [increased volume stretches Cardiac muscle increasing force of Contraction

↓ Increased Cardiac Workload

Baroreceptor trigger → immediate response

↓ VASOCONSTRICTION

↓ increased force of contraction

↑ afterload

↑ Heart rate

↓ increased cardiac filling

Shortened diastole (Tachycardia)

↓ increased pulse

↓ Reduced Coronary Artery filling

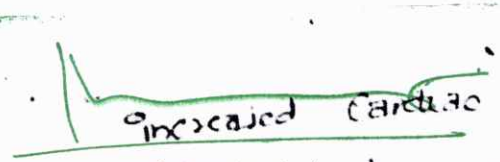
↓ reduced Myocardial O_2

increased demand for Myocardial O_2

↓ Myocardial fatigue

HEART FAILURE

increased Cardiac Workload



Clinical Manifestations of Congestive Heart Failure :- (4)

Mechanism

Left sided Heart Failure

* Increase Pressure in Left Ventricle
⇓
Decreased blood flow from Left Atrium to Left Ventricle
⇓
Increase pressure in pulmonary Vein [pulmonary Hypertension]
⇓
Fluid build-up in Lungs
⇓
Fluid accumulation in Pulmonary tissues, alveoli & decreased gas exchange

Right sided heart Failure

* Right Ventricle unable to empty blood in pulmonary artery
⇓
Increased Right Atrial pressure
⇓
Increased Systemic Venous Pressure
⇓
Peripheral edema & Hepatic Congestion
['in legs, [liver, peritoneal cavity & spleen.]

Symptoms

⇒ Fatigue, SOB, dyspnea on exertion
⇒ paroxysmal Noctural dyspnea
⇒ orthopnea
⇒ pulmonary edema (congestion)
⇒ Asthmatic like Wheezing
⇒ Dry hacking Cought (@ night)

⇒ Swollen legs or peripheral edema of lower extremities
⇒ liver and spleen enlargement
⇒ Abdominal pain
⇒ Jugular Vein distension
⇒ Ascites

⇒ pale or bluish skin
⇒ palpitations, Arrhythmia, increased blood pressure
⇒ Weakness, Insomnia, Restlessness
⇒ Nausea, Vomiting, Appetite less
⇒ Slow weight gain
⇒ Arrhythmia
⇒ Weakness, fatigue, dizziness, fainting, Nocturia.

** Classification of CHF :-

Class I :- Patients in this Category feel no symptoms & can perform ordinary physical activities without any limitation

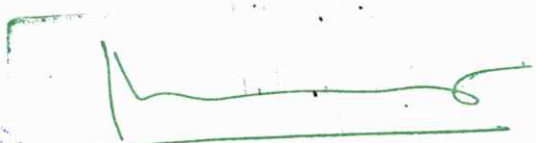
Class-II :- Ordinary physical activity somewhat limited by dyspnea
Eg:- Long distance walking, Climbing two flights of stairs)
also symptoms at rest

Class-III :- Exercise limited by dyspnea with Moderate Workload
Eg:- short distance walking, Climbing one flight of stairs)

Class-IV Symptoms of Cardiac insufficiency with any physical activity or even at rest.
Dyspnea at rest with very little exertion.

Diagnostic Evaluation of CHF

> Medical History & physical examination
> Electrocardiogram [ECG]



> Echocardiogram
> Chest X-ray
> Stress test
> Angiogram
> Cardiac CT or MRI
> Blood test → BNP (B-type Natriuretic peptide).
[* * * if there is any problem in Heart functioning, then there is rapid increase in the BNP level] * * *
> Radionuclide Ventriculography
> Electrophysiology study.

Treatment of Congestive Cardiac Failure:

I. Diuretics – Loop diuretics: Furosemide, 20-40 mg OD PO; Bumetanide 1-3 mg OD PO
Thiazide derivatives: Hydrochlorthiazide 25-100 mg OD PO

Side-effects: Fatigue, Muscle cramps Weakness, low potassium levels

II. Angiotensin – Converting enzyme [ACE] inhibitors:

Enalapril 10mg BD — Ramipril: 5mg BD
Lisinopril 20-40 mg OD — Fosinopril 40mg OD
Captopril 50mg TID

Side-effects: dry cough, fatigue, Dizziness

III. Beta blockers:

Carvedilol 25mg PO BD
Metoprolol 200 mg OD PO
Bisoprolol 1.25mg OD PO

Sideeffects of β-Blockers
Fatigue, dizziness, bronchospasm
Nausea, Constipation

IV. Vasodilator therapy:

Nitroglycerin cap. 2.5-6.5mg TID Sublingual

Hydralazine	10-25mg	Every 8hrs	PO
Isosorbide dinitrate	40mg	BD	PO
Morphine sulphate	50mg	IV	IV

(7)

side effects: Rapid-head beat, Heart palpitations. Fluid retention

Digitalis:

Digoxin 125 - 500 mcg,

Dizziness, Diarrhoea, Mental disturbances.

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Gunthipally (V), Abdullapurmet (M)
R.R. Dist. Telangana.

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CONJUNCTIVITIS

Definition :- Conjunctivitis refers to the inflammation or infection of the conjunctiva.

It can be acute or chronic.

→ Conjunctivitis is classified into the following types.

I. Infectious
- (i) Viral Conjunctivitis
- (ii) Bacterial Conjunctivitis
  - Hyperacute
  - Acute
  - Chronic

II. Non-Infectious
- → By allergens
- → Toxins
- → Chemicals
- → Trauma

Etiology :- Conjunctivitis is the most prevalent etiology of eye redness and discharge.

→ Infectious Conjunctivitis can result from bacteria, Viruses, fungi and parasites.

→ The Most Common Viral pathogen being Adenovirus and others be Herpes simplex, Herpes Zoster, Enteroviruses.

→ Bacterial Conjunctivitis is more common in children than in adults, and the pathogens responsible for bacterial Conjunctivitis vary depending on the age group.

→ Staphylococcal aureus, Streptococcus pneumoniae and Haemophilus influenzae are the most Common cause in adults, while in children the disease more often caused by H. influenza, S. pneumoniae etc.

→ Other bacterial Causes include Neisseria gonorrhoeae, Chlamydia trachomatis.

EPIDEMIOLOGY:- The Prevalence of Conjunctivitis Varies by age, Sex, etc. The highest rates of diagnosis are among children less than 5 years of age, with the highest incidence occurring between the ages of 0 and 4 years. Allergic Conjunctivitis is the most frequent cause of Conjunctivitis affecting 15 to 40% of the population and is most commonly observed in Spring and Summer. Bacterial Conjunctivitis rates are highest from December to April.

→ Bacterial Conjunctivitis → 4% prevalence in Adults
→ 80% prevalence in Pediatrics

→ Viral Conjunctivitis → 36% prevalence in Adults
→ 13% Prevalence in Pediatrics

→ Allergic Conjunctivitis 2% prevalence in pediatrics.

PATHOPHYSIOLOGY :-

Conjunctivitis results from inflammation of the Conjunctiva. The cause of this inflammation can be due to infectious pathogens or non-infectious irritants. The result of this irritation or infection is injection or dilation of the conjunctival vessels. This results in the classic redness and edema of the Conjunctiva. The entire Conjunctiva is involved, and there is often discharge as well. The quality of discharge varies depending on the causative agent.

Pathogenesis of Infective Conjunctivitis:-

Infective Conjunctivitis is an infection of the Conjunctiva either caused by Viruses or bacteria such as adenovirus, staphylococcus aureus, Streptococcus pneumoniae and Haemophilus influenzae.

Infective Conjunctivitis is usually spread by:

→ Direct Contact with the infected person's eye drainage or drainage from the person's cough, sneeze or runny nose.

→ Contact with the infected persons fingers, hands or objects.

Pathogenesis of Neonatal Conjunctivitis:

NC is occuring in a newborn during the first month of life and often known as Ophthalmia neonatorum.

Neonatal Conjunctivitis is mainly caused by sexually transmitted diseases agents such as C. trachomatis, N. gonorrhoeae & HSV.

The recognized routes of transmission of organisms to the newborns include:

→ Infected birth canal during Vaginal births (i.e. vaginal delivery)

→ Transmembrane transmission of the infection.

→ Transplacental transmission of the infection.

Pathogenesis of Allergic Conjunctivitis:-

Development of allergic Conjunctivitis is the result of Type I Hypersensitivity reaction in the Conjunctiva. Allergic Conjunctivitis is caused by the immunoglobulin E (IgE) Mediated reaction to environmental allergens.

IgE Mediated Hypersensitivity reaction precipitated by small airborne allergen's

↓

Local Mast cell degranulation

↓

Release of the chemical Mediators (Histamine, Chemolactic facto

↓

Inflammation.

Signs & Symptoms:-

Bacterial:- Symptoms of redness and foreign body sensation, white - yellow purulent or Mucopurulent discharge, Infrequently preauricular lymphadenopathy.

Viral:- Symptoms of itching and tearing, Watery discharge tender preauricular lymphadenopathy, Burning or Gritty feelin of eye, rarely photophobia etc.

Allergic:- Symptoms of itching or burning, history of allergies, watery discharg, edematous eyelids & No preauricular lymphadenopathy.

Diagnostic Tests:-

→ Slit Lamp Exam - sends a thin beam of light e examines

- Visual Acuity Tests → Checks how well a pt can read letters or symbols from 20 feet away, while covering one eye.
- Eye Culture → Doctor Collects a sample of cells on the insid of eyelids with a Cotton swab & sends to lab.

PHARMACOLOGICAL TREATMENT :-

1) **Anti-Histamines :-** Block the action of histamine, a chemical that is produced when the body detects allergen. This helps in preventing inflammation, itching & discomfort.

Side-Effects :- Nausea, Vomiting, dizziness, dry Mouth, blurred vision when taken orally.

2) **NSAIDs** - Reduce the inflammation & Redness as well as itching.

→ When applied causes burning sensation, but usually subsides over-time.

3) **Topical Corticosteroids :-** Reduce inflammation in eye

Side-effects :- Blurred Vision, ↑ in IOP.

4) **Mast-Cell stabilizers :-**

Preventing the body from Releasing histamine during an allergic reaction

* → No significant side-effects.

5) **Antibiotics :-** Inhibit the bacterial enzyme DNA gyrase & Topoisomerase IV

↓

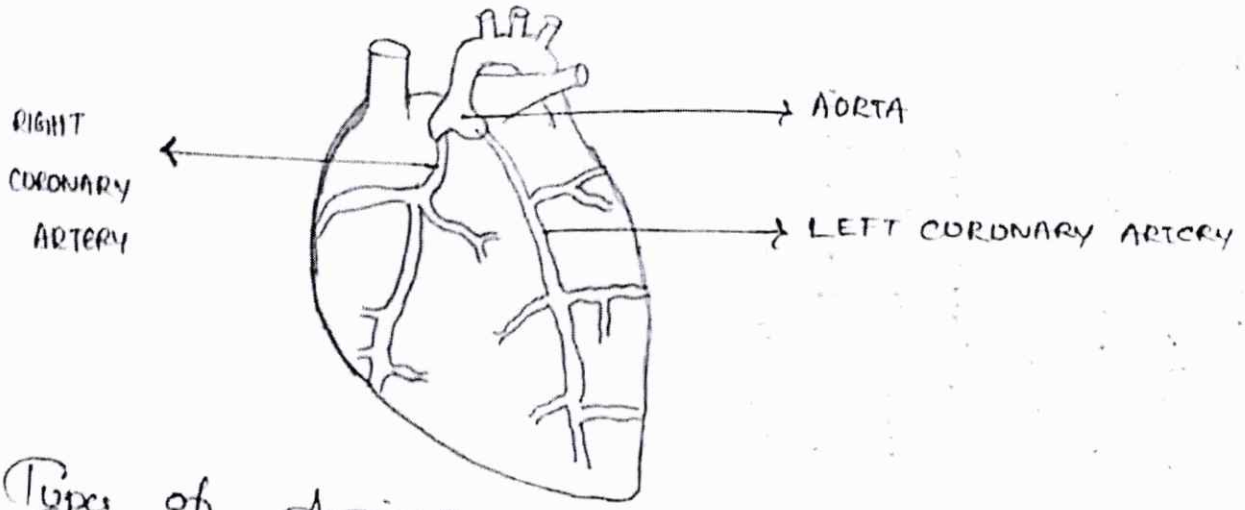
responsible for bacterial DNA replication.

Angina Pectoris / ISCHEMIC CHEST PAIN: (1)

Definition:- Angina pectoris latin phrase "Strangling in the chest" Angina is a clinical syndrome characterized by episodes of Pain or pressure in the Centre of the chest just behind the breast bone.

It occurs when the heart Muscle doesn't get as much blood (hence O_2) as it needs because of narrowed or blocked coronary blood vessels.

* Angina is a Symptom of a Condition Called Myocardial Ischemia.



Types of Angina:-

1. Chronic Stable Angina
2. Unstable Angina
3. Variant Angina

CHRONIC STABLE ANGINA (or) FIXED ~~ANGINA~~ STENOSIS / DEMAND ANGINA

Chronic narrowing of Coronary arteries due to atherosclerosis.

Tissue become ischemic Particularly during times of increased O2 demand Physical exertion, large meal, emotional stress

Lasts less than 5 min

Relieved by rest or Medication

UNSTABLE ANGINA / THROMBUS

SUPPLY ~~ANGINA~~ ISCHEMIA

- Caused by formation and dissolution of a blood clot (thrombus) with in a Coronary artery.
- Symptoms worse, severe pain last longer, occur at rest, not relieved by nitroglycerin.

VARIANT ANGINA / PRINZMETAL

SUPPLY ~~ANGINA~~ ISCHEMIA

- Results from Coronary Vasospasm, which temporarily reduces Coronary blood flow.
- Emotional stress dysfunctional Coronary Vascular endothelium occurs during night or rest.

CAUSES AND RISK FACTORS OF ANGINA :-

Age, Women >55, Men >45
Atherosclerosis
Smoking, Obesity, DM
High BP
High blood Cholesterol or triglyceride
Excess intake of fat or salt
Eating a heavy meal
Sedentary life style or overwork
Emotional stress
Family History of CAD
Blocked artery
Coronary Artery Spasm
Microvascular Constriction

PATHOPHYSIOLOGY :-

Vasospasm, fixed stenosis, Coronary thrombosis

⇓

Insufficient Coronary blood flow

⇓

↓ O_2 supply to meet an increased myocardium demand for O_2

⇓

Need for of O_2 exceeds the supply

⇓

Decreased O_2 supply / demand ratio

⇓

Myocardial Hypoxia

⇓

Stimulation of pain receptors within myocardium

⇓

ANGINA PECTORIS

Signs and symptoms of Angina :-

- Chest pain
- Chest discomfort,
- Squeezing, pressure, heaviness
- tightness, burning, aching across the chest, usually behind the breast bone
- Pain can spread to jaw, arm, shoulder, neck, upper abdomen even teeth or back
- Can last for 1 to 15min
- Dizziness, fatigue
- Indigestion, Nausea, Vomiting, SOB, chest pain
- Sweating, pallor or Cold
- Heavy sensation in the upper chest.

Complication:-

* Heart Attack

Diagnostic Evaluations of Angina

- EKG / ECG [Electrocardiogram]
- Stress test
- Echocardiogram
- Chest X-ray
- Coronary angiography
- MRI, CT-scan
- Positron Emission Tomography (PET)
- Holter Monitoring
- Blood test → Fats, Cholesterol, Cardiac enzymes (Troponin, CK-MB, Myoglobin, C-reactive protein, Homocysteine

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Management of Angina :

I. Nitrates - Nitroglycerin — short duration (Sub-lingual)
Intermediate (oral)
Sustained long term (Transdermal)

SE: Headache, blurred vision, dry Mouth, Nausea

II. Antiplatelet and Anti-coagulants : Aspirin, ~~Clopidogrel~~ 162 - 325 mg
Heparin IV infusion initial bolus 60U/kg, 4000U
12U/kg/hr - 1000U
Clopidogrel - 75mg daily

SE: Headache, nausea, Abdominal pain

III. Beta blockers : Propranolol ~~10mg PO OD~~
Metoprolol 100mg PO OD. Gradual dose
Atenolol - 25 mg/day ↑ to 100mg daily after

SE: fatigue, Nausea, diarrhoea, fatty acid

IV. Calcium Channel blockers : Nifedipine → 10mg PO
Amlodipine - 5mg PO

SE: constipation, fatigue, dizziness

V. Cholesterol lowering agents : statins - Atorvastatin - 10mg
Simvastatin - 20-40mg

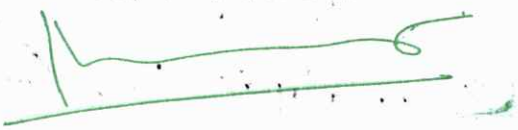
SE: feeling sick, Head ache, stomach pain

Surgical Management of Angina

I. Coronary Artery By-pass Surgery (5)

II. Atherectomy

III. Percutaneous (Transluminal) Coronary Angioplasty



Management of Angina :-

I. Nitrates - Nitroglycerin
- short duration (Sub-lingual)
- Intermediate (oral)
- extended long term (transdermal)

SE: Headache, blood vessels, dry mouth, nausea

II. Antiplatelet and anti coagulants :- Aspirin, ~~Clopidogrel~~ 162 - 325 mg
Heparin, Clopidogrel

III. Beta blockers :- Propranolol ~~10mg po OD~~
Metoprolol 100mg po OD Initial dose
Atenolol - 25mg /day ↑ to 100mg daily

SE: fatigue, Nausea, diarrhoea, feeling sick

IV. Calcium channel blockers :- Nifedepine → 10mg PO
Amlodepine - 5mg PO

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Surgical Management of Angina

I. Coronary Artery By-pass Surgery

II. Atherectomy

III. Percutaneous (Transluminal) Coronary Angioplasty

:- Management of Angina Pectoris :-

Common side effects

1. NITRATES

Nitroglycerin
- Short duration - Sublingual
- Intermediate - oral
- Long-term - transdermal

→ Head ache, Blurred vision, Dry Mouth, Nausea

2. ANTI-PLATELET/ ANTI-COAGULANTS

Aspirin - 162-325mg
Heparin - 60u/kg - 4000units
Clopidogrel - 75 mg /day

→ Headache, Abdominal pain

3. BETA BLOCKERS

Propranolol — Given under strict Monitoring
Metoprolol - 100 mg PO OD Initial dose
Atenolol - 25mg - 50mg PO/day → increased upto 100mg

Fatigue, Nausea, Diarrhea, feeling sick

4. CALCIUM-CHANNEL BLOCKERS

- Dihydropyridine
  - Amlodipine 5mg PO
  - Nifedipine - 10mg PO
- Non-dihydropyridine
  - Verapamil
  - Diltiazem

Constipation, Fatigue, dizziness

5 CHOLESTEROL LOWERING AGENTS

Statins
- Atorvastatin - 10mg PO
- Simvastatin - 20-40mg PO

Feeling sick, Head ache, stomach pain.

Myocardial Infarction

DEFINITION:- MI refers to the process by which myocardial tissues are permanantly destroyed in the region of heart, that are deprived of an inadequate supply of blood (Myocardial Ischemia) because of a reduced Coronary blood flow, Subsequently necrosis or death of Myocardial tissue occurs.

(or)

MI or heart attack is the irreversible damage of Myocardial tissue caused by prolonged Ischemia & Hypoxia [lack of O_2 supply]

ETIOLOGY:-

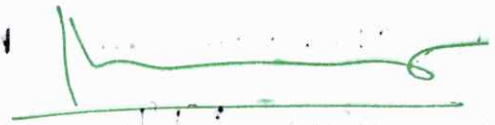
- Tobacco, Smoking → Age
- H.T.N → Gender
- Drug abuse → DM
- Obesity → Family History of Ischaemic Heart Attack
- Stress → CKD
- Alcohol

EPIDEMIOLOGY:- In industrial Countries MI accounts for 10-25% of all deaths.

→ Incidence is higher in elderly people, about 5% occur at people under age

→ Males have higher risk.

→ Women during reproductive period have low risk



→ In 2000, studies, revealed a prediction that India would account for 40 - 60% of cardiovascular disease burden within next 10-15 years.

→ Over last 30 years, the rate of diabetes increased from 2 - 6 % in rural popln and 11-15 % in urban popln.

Reasons for Blockade in Coronary Arteries:-

(i) **Atherosclerosis** :- Atherosclerosis is the build-up of plaque in the arteries; plaque consists of cholesterol, fatty substances, waste products and clot making substance fibrin. As plaque continues to collect in artery walls, the arteries become narrow and stiffen and limits or stops blood flow to the Heart Muscles.

(ii) **Thrombus or Embolus** :-

A thrombus is a solid mass of platelets and fibrin that forms locally in vessel. The thrombus is formed when the clotting Mechanism is activated. This is supposed to happen when there is an injury or at the site of an ulcerated atherosclerotic plaque. As when there is a rupture in plaque, at that site there is activation of clotting factors, which leads to deposition of more amount of platelets.

(iii) **Embolus from other site** :-

The already formed emboli, ~~from other~~ in the blood stream in other vessels, will flow and reaches the arteries and forms obstruction.

(5) normal blood flow in arteries.

(iv) **Vasospasm** :- Narrowing of arteries is known as Vasospasm. Vasospasm occurs due to increase in Sympathetic activity, Emotional stress and Endothelium damage of arteries.

→ Nitric Oxide and prostacyclins are not secreted due to the damage of endothelium. As these are (i.e) Nitric oxide & PG are responsible for relaxation of Vessels), not secreted properly leads to narrowing of the arteries.

(v) **Hemorrhage / Anaemia** :-

Due to internal trauma or injury there is loss of blood from the Vessels. As there is defecit in blood supply, leads to a condition called Anemia.

Because of this Hemorrhage and Anemia there is inadequate supply of blood & O2 to the arteries and leads to MI.

* Classification on Degree of Tissue Damage in Myocardium

(i) Zone of Infarction :- Death of Heart Muscle, Complete O_2 Deprivation & Irreversible.

(ii) Zone of injury :- Muscle surrounding area of Necrosis, injured and still Viable.

(iii) Zone of Ischemia :- Muscle surrounding area of injury, Ischemic, Viable.

* Classification According to Layers of Heart Muscles Involved

(i) Transmural Infarction [STEMI] :- Involves full thickness of Heart Muscle, complete Obstruction of Coronary artery.

(ii) Sub-Endocardial (non-Transmural) Infarction :- (NSTEMI) :- Involves small area in the sub-endocardial wall of the left Ventricle, Ventricular Septum or papillary Muscles.

* Classification on Basis of location of Heart Muscle Involved

(i) Obstruction of Left anterior descending artery (LAD) result in anterior or septal wall MI.

(ii) Obstruction of Circumflux artery results in posterior wall or lateral wall of MI.

(iii) Obstruction of right Coronary artery results in Inferior Wall MI.

↓

Release of Mediators → Vasospasm
(Platelets)

Pathophysiology

- Coronary Atherosclerosis
- Coronary Thrombosis or embolism
- ↓ blood flow & stasis or haemorrhage
- Coronary Vasospasm

⇓

Reduced Myocardial blood supply & ↑ Myocardial O_2 demand

⇓

Myocardial Ischemia

⇓

Plaque rupture & thrombogenesis

⇓

Permanent thrombus

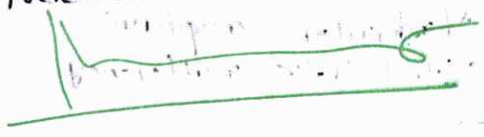
⇓

Myocardial cell necrosis

⇓

Myocardial Infraction.

Long term Myocardial Ischemia → Myocardial cell necrosis



Clinical Manifestations :

→ Chest pain → not relieved by (GTN)
& last longer than 30 min

→ Anxious & Restlessness

→ Diaphoresis, cool, clammy, Moist skin, facial pallor

→ Faster than normal heart rate & respiratory rate

→ ↓ Cardiac Contractility & heart rate

→ Dyspnea palpitations, extreme fatigue

→ Epigastric or abdominal distress

→ Disorientation, Confusion, fainting (syncope)

→ ↓ urine output

→ Fever

→ peripheral Vasoconstriction

→ chocking sensation

→ N & V

Complications of MI

⇒ Dysrhythmias

⇒ Heart failure

⇒ Pulmonary edema

⇒ Cardiogenic shock

⇒ Post infarction angina

⇒ Ventricular rupture

⇒ Mitral Valve insufficiency

⇒ Aneurysm.

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Diagnostic Evaluations of MI

- Detailed Medical History
- physical Examination
- Electrocardiogram (ECG)
- Echocardiogram
- Angiography
- Stress test
- Positron emission Tomography Scan
- CT scan & MRI

Blood tests

→ Fats ; Cholesterol level in blo...

→ Cardiac biomarkers - (Troponin, CK-MB, Myoglobin, C-reactive protein & Homocysteine

* Management of MI :-

→ O_2 therapy :- 3 litres by nasal cannula [restores Ischemic cells]

→ Thrombolytic therapy :- Urokinase, Streptokinase, tissue plasminogen activator

→ Analgesics - Morphine, Mepredine

- Vasodilator therapy :- Nitroglycerin (GTN)

→ ACE Inhibitors :- Captopril, Enalapril.

→ β-Blocker / β-adrenergic blocking agents :- Propanolol, Atenolol, Metoprolol

→ Ca+ channel blockers : Nifedipine, Amlodipine

→ Anti-coagulants → Heparin, Aspirin.

→ Cholesterol lowering agents : Statins.

Surgical Management of MI

→ Coronary artery bypass surgery

→ Percutaneous Transluminal Coronary angioplasty (PTCA)

→ Coronary stent

→ Atherectomy

→ Transmyocardial Laser Revascularization

** Risk Factors

Modifiable	Non Modifiable Risk
→ High blood lipid level	→ Family History
→ Smoking alcohol	→ Age
→ Hypertension	→ Gender
→ DM	→ Autoimmune disease
→ physical inactivity, obesity	
→ Emotional stress	
→ Lack of estrogen in Women	
→ ↑ Homocysteine, C-reactive protein	

Appointments

Prescribing Guidelines for Paediatrics.

* Paediatrics is the branch of Medicine dealing with the development, diseases and disorders of Children.
* Childhood has been sub-divided into
  - ✓ Neonate - first 30 days of life
  - ✓ Infant - from 1 Month to 1 year
  - ✓ Child - from 1 year to 12 years.

* Growth and development are important indicators of child's general well-being.
* Weight is one of the most widely used indicators of Growth.
* Height is another tool
* For infants upto 2 years of age, Head Circumference is also useful parameter to Monitor.

General Prescribing Guidelines for Paediatrics :-

Children and particularly neonates, differ from adults in their response to drugs.

* Factors Affecting drug Disposition in Children :-

(1) ORAL ABSORPTION :-

✓(i) Variable gastric and intestinal transit time : In young infants, gastric emptying time is prolonged and only approaches adult values at around 6 Months of age.

(ii) Increased Gastric pH : Gastric acid output does

Appointments not reach adult values until the second year of life.

(iii) Other factors :- GI contents, posture, disease states and therapeutic interventions can also affect the absorption process.

(2) DISTRIBUTION :-

(i) Increased total body water :- As a percentage of total body weight, the total body water and extracellular fluid volume decreases with increasing age. Neonates require higher doses of water soluble drugs, than adults

(ii) Decreased Plasma Protein Binding :- Plasma protein binding in neonates is reduced as a result of low levels of albumin and globulins and an altered binding capacity. High circulating bilirubin levels in neonates may displace drugs from albumin.

(3) METABOLISM :-

* Enzyme systems mature at different times and may be absent at birth, or present in considerably reduced amounts
* Altered Metabolic pathways may exist for some drugs.
* Metabolic rate increases dramatically in children and is often greater than adults.

(4) EXCRETION :-

* Complete Maturation of renal function is not reached until 6-8 Months of age.

Factors Affecting Paediatric therapy :

Most drugs are either Metabolized by liver or eliminated by kidneys Hepatic and Renal diseases are expected to decrease the dosage requirements.

** CYSTIC FIBROSIS require larger doses of certain drugs to achieve therapeutic Concentrations.

LIVER DISEASE : Liver is the Main organ for drug Metabolism drug clearance usually is decreased in patients with Hepatic disease. Drug Metabolism by the liver depends on Complex interactions among Hepatic blood flow, ability of the liver depends to extract drug from the blood, drug binding in the blood and both type and Severity of liver disease.

On the basis of Hepatic Extraction, drugs can be divided into two Categories.

(i) Drugs with High Hepatic extraction ratio (0.7), Such drugs include Morphine, Meperidine, Lidocaine propranolol. Clearance of these drugs is affected by Hepatic blood flow. A decreased Hepatic blood flow in presence of disease states as Cirrhosis & CHF is expected to decrease the Clearance of drugs with high extraction ratios.

(ii) Low Extraction ratio (<0.2), theophylline, Chloramphenicol and Acetaminophen is influenced by Hepatocellular function.

RENAL DISEASE : Renal failure decreases the dosage requirements of drugs eliminated by the kidneys. For many important drugs like Aminoglycosides, rate of elimination is directly proportional to GFR.

$GFR \propto k \times L / S.Cr$

* k - Constant
* L - Child length in Centimeters

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Appointments CYSTIC FIBROSIS : The patients with Cystic Fibrosis require increased doses of Certain drugs.
* A higher clearance of such drugs as Gentamycin, Tobramycin, Amikacin, dicloxacillin, piperacillin & theophylline in patients with Cystic fibrosis Compared with those without this disease.
* The Apparent Volume of distribution of Certain drugs also may be altered in Cystic fibrosis.

ISSUES IN PAEDIATRIC DRUG THERAPY :

* **Pain Management** : The prevailing wisdom was the neonates did not experience pain owing to inadequately developed neuroendocrine System and nerve pathway.
* The basic Mechanism of pain perception in infants and children are Similar to those of adults except that pain impulse transmission in neonates occur primarily along slow conducting non-myelinated C fibres rather than along Myelinated A & fibres.
~~In addition, less perception in non-Myelinated C fibres~~
→ In addition, less precision in pain signal transmission exists in the spinal cord and descending inhibitory neurotransmitters are lacking. The result is that neonates and young infants may perceive pain more than older children or adults.

Route of Administration & Drug Regimens :

Compliance in Children is influenced by the formulation, taste, appearance and ease of administration of a preparation.

Appointments → prescribed regimens should be tailored to the child's daily routine

→ Whenever possible, the use of products which avoid the need for administration during school hours should be avoided.

→ When administration at school is unavoidable, consideration should be given to prescribing and supplying the school time dose in separate labelled containers.

→ Most schools will request written permission from parents to administer the medicine.

Prescription Writing:

→ Inclusion of age is a legal requirement in the case of prescription-only medicines for children under 12 years of age.

→ Although liquid preparations are particularly suitable for children, they may contain sugar which encourages dental decay.

→ Sugar-free medicines are preferred for long-term treatment.

→ When a prescription for liquid oral preparation is written and those ordered in smaller than 5ml an oral syringe will be supplied.

Dosages:- paediatric doses should be obtained from a paediatric reference text

→ When considering drug use in children, the following age groups should be used:

Neonates, infant, child, adolescent.

Appointments * Unless the age is specified the term child in British National formulary includes persons aged 12 yrs & younger.

BSA = $\sqrt{\frac{\text{Height (cm)} \times \text{Weight (kg)}}{3600}}$

Dose Calculation: Childrens dose may be calculated from adult doses by using age, Body weight or BSA

→ Body Surface Area (BSA) estimates are more accurate for calculation of paediatric doses than body wt since many physiological phenomena better to body surface area

Adverse Drug Reactions:- ADR's profiles in children may differ from those seen in adults.

* The identification and reporting of adverse reactions to drugs in children is particularly important because

✓ The action of drug and its pk in children may be different from that in adults.

✓ Drugs are not extensively tested in children.

✓ Many drugs are not specifically licensed for use in children and are used off-label.

✓ Suitable formulations may not be available to allow precise dosing in children.

✓ The Nature and course of illness & ADR's may differ from adults & children.

Safety in the Home:-

- patients Must be warned to keep all Medicines out of reach of children. All solid dose and all oral and external liquid preparations Must be dispensed in

MAY '22

M	T	W	T	F	S	S
30	31					1
2	3	4	5	6	7	8
9	10	11	12	13	14	15
16	17	18	19	20	21	22
23	24	25	26	27	28	29

April 24
Sunday 2022
Day 114 251 Week 17

Appointments Child-resistant Containers Unless:

✓ The Medicine is an original pack or patient pack such as to make this impossible

✓ The parent will have difficulty in opening a child resistant Container.

✓ All unused Medicines should be returned to a Supplier for destruction.

✓ No Suitable Child resistant exists for a particular liquid preparation.

PRINCIPAL
VAAGDEVI INSTITUTE OF PHARMACEUTICAL SCIENCES
Kothapally (V), Abdullapurmet (M)
R.R. Dist. Telangana

PRESCRIBING GUIDELINES

Pregnancy :- Pregnancy is the fertilization and development of one or more offspring known as embryo / fetus, in a Women's uterus.

→ In pregnancy, there can be Multiple gestations. The term embryo is used to describe the developing offspring the first 8 weeks following conception.

→ Altered drug pharmacokinetics during pregnancy can influence drug selection and dosing.

→ Physiologic changes during pregnancy typically result in changes in absorption, protein-binding, distribution and elimination.

PREGNANCY SIGNS AND SYMPTOMS :-

→ The early Symptoms of pregnancy include:

* Fatigue and increased frequency of urination
* At Approximately 6 Weeks gestation, the pregnant Women may experience Nausea and Vomiting, Commonly known as Morning sickness but may occur at any time of the day.
* Nausea and Vomiting Usually resolve at 12 - 18 Wks gestation.
* Foetal Movement is detected in the Womens lower abdomen at 16 to 20 Weeks of gestation.
* Approximately 280 days (40 Weeks / 9 Months) Constitute the duration of pregnancy.

of embryo or fetus beginning with the first day of the last Menstrual period, which is about 2 weeks prior to fertilization.

PHARMACOKINETICS FACTORS :-

- Drug absorption during pregnancy may be altered by delayed Gastric emptying and Vomiting.
- In case of Weak acids and bases increased Gastric pH may affect absorption
- Higher estrogen and progesterone levels may alter liver enzyme activity and increase elimination of some drugs, but cause accumulation of others.
- Maternal plasma Volume, Cardiac output, and Glomerular filtration increase by 30% to 50% during pregnancy, possibly lowering the plasma concentration of renally cleared drugs.
- Body fat increases, thus Volume of distribution of fat-soluble drugs may increase.
- Plasma albumin Concentrations decrease, thus Volume of distribution of highly protein bound drugs may increase.
- The placenta is the organ of exchange between the Mother and fetus for a number of substances including drugs. Drug Molecular Weights affect drug transfer across the placenta.
  - Mol. wt. < 500 daltons cross readily
  - Mol. wt. 600 - 1000 daltons cross More slowly
  - Mol wt: > 1000 daltons not cross in significant amounts

> Lipophilic drugs (eg: opiates and antibiotics) cross more easily than water soluble drugs.

> Certain protein - bound drugs may achieve higher plasma concentrations in the fetus than in the Mother.

DRUG SELECTION DURING PREGNANCY :-

✓ The incidence of Congenital Malformation is approximately 3 - 5% and it is estimated that 1% of all birth defects are caused by Medication exposure

✓ Adverse fetal drug effects depend on dosage, route of administration, Con-Comitant exposure to other agents and stage of pregnancy when the exposure occured.

✓ Exposure of the fetus in the first 2 weeks after Conception may have an "all or nothing effect.

✓ Exposure during the period of organogenesis (18 to 60 days post-Conception) may result in structural anomalies,

Eg:- Methotrexate, Cyclophosphamide, diethylstilbestol, thalidomide and certain anti-epileptic drugs

✓ Exposure after this point may result in growth retardation, CNS or other abnormalities / death.

e.g. NSAIDs, ACE I's, tetracycline derivatives.

Principle for Selecting Medications for the use during pregnancy include:

- ✓ Select drugs that have been used safely for long periods of time (1+);
- ✓ prescribe dosa at the lower end of the dosing range.
- ✓ Eliminate non-essential Medication and discourage Self Medication
- ✓ Avoid Medications known to be harmful
- ✓ Adjust doses to optimize health of Mother while Minimizing risks to fetus.

PRE-CONCEPTION PLANNING :-

- > Ingestion of folic acid by all Women of child-bearing potential should be encouraged, as it reduces the risk of neural tube defects in offspring.
- ✓ Women at low risk should take 400 mcg/day throughout the reproductive years.
- ✓ Women at high risk (eg: those who take certain Seizure Medications) should take 4 mg/day.

TERATOGENECITY :- Is the ability to cause developmental anomalies in a foetus.

Things which can cause developmental abnormalities are known as "TERATOGENS" and they include things like Viruses, Chemicals and radiation.

> Substances with teratogenic effect can cause ...
DNA of a developmental foetus. (5)

DYSMORPHOGENESIS: The process of abnormal tissue formation and development of ill-shaped body structures. This term usually includes all structural and functional defects.

DRUG USE DURING PREGNANCY:

> A Mother taking illegal drugs, during pregnancy increase her risk for placental blood and heart infections, skin infections etc.
> A Womens drug use can affect both her foetus and her new born.
> After birth, some drugs can be passed to the baby through breast-feeding.

HOW DRUGS AFFECT THE PREGNANT WOMEN:-

✓ poor appetite
✓ Trouble sleeping at night
✓ Early labour
✓ Water breaks too early
✓ Sudden bleeding.

HOW DRUGS AFFECT THE UNBORN BABY

✓ Low Weight at birth
✓ Early delivery or Miscarriage

✓ Fetal Alcohol Syndrome / Fetal Alcohol Effect (FAE)
✓ Mental Retardation
✓ Defects of the face and body
✓ Death.

How DRUGS AFFECT YOU AND YOUR BABY AFTER DELIVARY

✓ Withdrawl Symptoms that May keep you and your baby in the Hospital longer
✓ Sudden Infant Death Syndrome (SIDS)
✓ Trouble being a parent
✓ Hard to bond with your baby
✓ Hard to hold a Job

Placental Drug Transfer :-

→ Drugs administered to Mothers have the potential to cross the placenta and reach the foetus.
→ Several drugs rapidly cross the placenta and pharmacologically significant Concentrations equilibrate in Maternal and foetal plasma.

PREGNANCY - INFLUENCED ISSUES :

GASTROINTESTINAL TRACT :

* Constipation :

→ Constipation Commonly occurs during pregnancy
→ Non-drug Modalities such as physical exercise, an increased intake of dietary fiber and fluid should be

→ Lactulose, Sorbitol, bisacodyl or senna can be used occasionally. (7)

→ Castor oil, Mineral oil should be avoided.

Gastroesophageal Reflux Disease:

→ Therapy includes lifestyle and dietary Modifications such as small, frequent Meals.

→ Alcohol, tobacco and Caffeine avoidance

→ Drug therapy, if necessary aluminium, calcium, or Magnesium antacids;.

→ Sucralfate, Cimetidine or Ranitidine and Metoclopramide are also options if the patient does not respond to histamine - 2 receptor blockers.

* Sodium bicarbonate and Magnesium trisilicate should be avoided.

Hemorrhoids :-

- Hemorrhoids during pregnancy are Common.
- Therapy includes high intake of dietary fiber, adequate oral fluid intake, use of sitz bath, topical anaesthetics, etc..
- Treatment for refractory hemorrhoids includes Sclerotherapy and Surgery.

Nausea and Vomiting: (N&V)

→ Upto 80% of all pregnant women experience some degree of N&V.

- Hyperemesis gravidarum (Severe Nausea and Vomiting requiring hospitalization for hydration and Nutrition) occurs in only about 1 to 3% of pregnant Women.

- Non-pharmacologic treatments include eating small, frequent meals; avoiding fatty foods.

(8)

→ Pharmacotherapy treatments include :

- Anti-Histamines (doxylamine)
- Vitamins (pyridoxine, cyancobalamin)
- Anti-cholinergics

- Ondansetron can be used when other agents have failed, and ginger is considered safe and effective

* Dexamethasone or prednisolone have been effective for hyperemesis gravidarum, but the risk of oral clefts is increased.

Gestational Diabetes Mellitus :-

→ First-line therapy includes nutritional and exercise interventions for all women and Calorific restrictions for obese women.

- Glyburide may be considered after 11 weeks of gestation.
- Goals of self-Monitored blood glucose levels while on insulin therapy are a preprandial plasma glucose level between 80 and 110 mg/dl and a 2 hr post-prandial plasma glucose less than 155 mg/dl.

HYPERTENSION :-

Hypertension during pregnancy includes gestational HTN (without proteinuria), preeclampsia

(Hypertension with proteinuria) and Chronic HTN (diagnosed prior to pregnancy with / without overlying preeclampsia).

* For Women at high risk for preeclampsia, low dose aspirin after 12 weeks gestation reduces the risk for preeclampsia by 19%.

→ Commonly used drugs for HTN in pregnancy include Methyldopa., labetalol and calcium channel blockers.

* ACEIs should probably avoided throughout the pregnancy.

* For very high blood pressure in pregnancy, drugs to avoid are Magnesium Sulfate (except for eclampsia prevention), high dose diazoxide, Nimodipine and Chlorpromazine.

VENOUS THROMBOEMBOLISM:

→ Risk factors for VT in pregnancy include increasing age, history of thromboembolism, hypercoagulable conditions, operative Vaginal delivery or Cesarean Section, Obesity and family history of thrombosis.

→ For treatment of acute thromboembolism, adjusted dose low-Molecular Weight or unfractioned heparin should be used for the duration of pregnancy and for 6 weeks after delivery.

→ Warfarin should be avoided after first 6 weeks of gestation because it may cause fetal bleeding, Malformations of the nose, stippled epiphyes or CNS anomalies.

HEADACHE :-

→ For tension headaches during pregnancy, non-pharmacologic approaches are first-line therapies include exercise and Massage.

→ If drug therapy is needed, acetaminophen is the first choice.

→ NSAIDs are contraindicated after 32 weeks gestation

→ For refractory Migraines, Narcotics may be used.

Urinary Tract Infections :-

→ The principal infecting organism is Escherichia Coli but proteus Mirabilis and klebsiella pneumoniae accoint for some infections.

→ Treatment of asymptomatic bacteriuria is necessary to reduce the risk of pyelonephritis and premature delivery. A course of 7-10 days of treatment is common.

— Cephalexin is Considered Safe and effective.

— Nitrofurantoin should not be used after week 37 due to concern for hemolytic anemia in the new born.

Sexually transmitted Diseases :-

 Still birth

→ Pneumonia
→ an eye infection called conjunctivitis.

Diabetes:

→ Insulin is the drug treatment of choice for patients with either type 1 or type 2 diabetes during pregnancy.

Epilepsy:-

→ Major Malformations occur in 4% to 6% of the offspring of Women taking benzodiazepines, Carbamazepine, phenobarbital, phenytoin or Valproic acid.

→ Drug therapy should be optimized prior to Conception and anti-epileptic drug Monotherapy is recommended when possible

→ All Women with epilepsy should take a folic acid supplement, 0.4 - 5mg.

→ To correct Vitamin k deficiency in newborns, Women should take 1mg oral Vitamin K_1 daily during the last Month of gestation.

Glaucoma

Definition :-

It is a group of disorders characterized by an abnormally high intraocular pressure (IOP), optic nerve dystrophy (weakness) and peripheral visual field loss (tunnel vision).

→ It is the symptomatic condition of the eye where the IOP is more than normal (above 25mmHg).

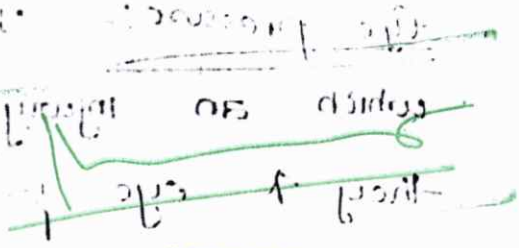
→ Untreated of glaucoma leads to permanent damage of the optic nerve and resultant visual field loss which can progress to blindness.

(or)

Glaucomas are ocular disorders that lead to an optic neuropathy characterized by changes in the optic nerve head (optic head) that is associated with loss of visual sensitivity and field.

* There are two major types of glaucoma
  (i) primary open-angle glaucoma (or) ocular hypertension
  (ii) primary angle closure glaucoma
  Either type can be inherited disorder, congenital, trauma or due to drugs.

POAG :- In POAG, the specific cause of optic nerve damage is unknown. ↑ intraocular pressure was historically considered as main cause.



Glaucoma

→ The normal IOP is (10-21) mmHg.

Epidemiology:- WHO has estimated that globally there are 12 million people blind from glaucoma.

→ Approximately 13% of UK blindness registrations are ascribed to glaucoma, and around 2% of people older than 40 years have COAG, it rises to almost 10% in people older than 75 years.

- Once diagnosed, affected individuals require lifelong monitoring for disease control and to detect possible progression of visual damage. Once lost, vision cannot be restored.

The disease is classified into two types:

(I) Primary open-angle Glaucoma

Referred to as a chronic open-angle glaucoma is associated with a relative obstruction to aqueous outflow through the trabecular meshwork and is a chronic progressive, disease, usually affecting both eyes.

* (i) Two conditions seen similar to COAG are normal-tension glaucoma where IOP is not raised on initial screening although signs of damage are present

(ii) Ocular hypertension (OHT) elevated IOP in the absence of visual field loss or glaucomatous optic nerve damage

(II) Primary angle-closure Glaucoma:-

PACG or closed angle glaucoma, is a condition in which closure of the angle by the peripheral iris results in a reduction in aqueous outflow. It occurs in predisposed eyes and is frequently unilateral.

Etiology:- How the aqueous humour is produced & Drained. (Imp)

production of aqueous humour occurs in the ciliary epithelium by two mechanisms: Secretion due to an active metabolic process, independent of the level of IOP, and ultrafiltration influenced by the level of blood pressure in the ciliary capillaries and the level of IOP.

→ outflow of aqueous humour occurs by two routes. Approximately 80% of total outflow is through the trabecular Meshwork into the canal of Schlemm and into the Venous Circulation.

→ The Uveoscleral pathway accounts for the remaining 20% through the ciliary body to be drained into the ciliary body.

Pathophysiology :-

* In POAG, increased resistance within the drainage channels causes the rise in IOP. The Main route of resistance to aqueous outflow lies in the trabecular meshwork

* In PACG, the rise in IOP is caused by a decreased outflow of aqueous humour, due to closure of the chamber angle by the peripheral iris.

→ The pre-disposing factors can be anatomical or physiological. The anatomical characteristics are lens size, corneal diameter etc

→ The lens continues to grow throughout the life. This brings the anterior surface close to the cornea. This will lead to progressive shallowing of the anterior chamber

** Clinical Manifestations :-

POAG is typically characterized by : an IOP > than 21mmHg an open angle & Visual field loss.

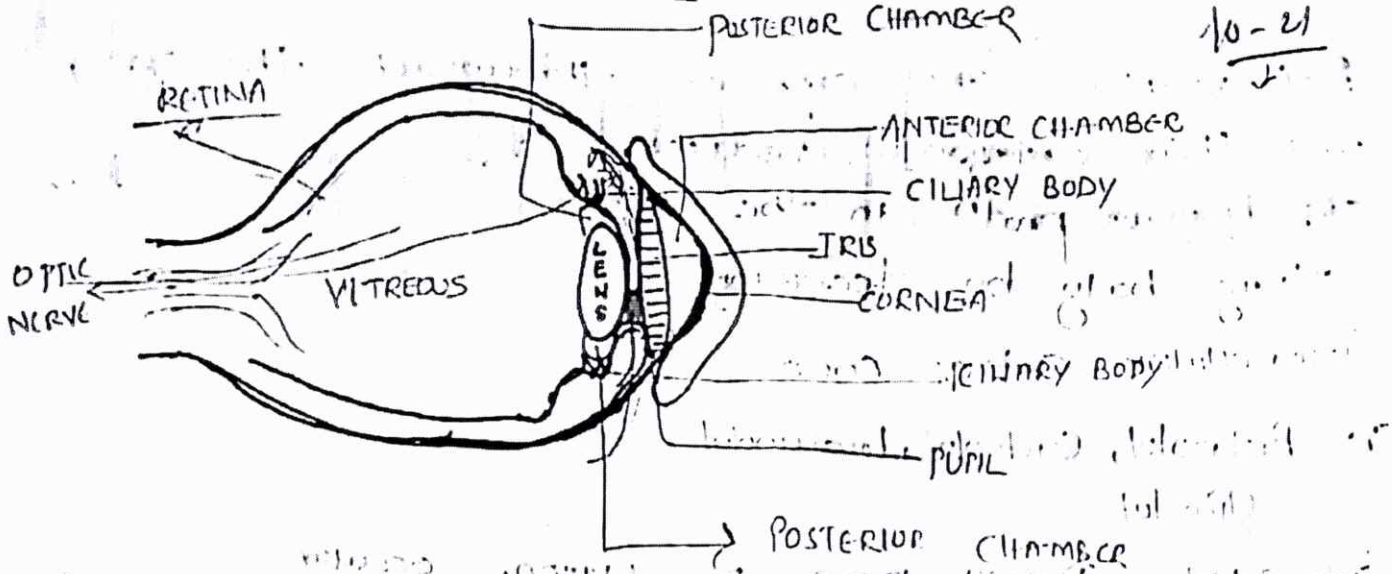
* PACG - typically experience intermittent prodromal symptoms eg- Halos or Hazy vision, occasionally Headache.

o Acute symptoms be ocular pain, Nausea, Vomiting & abdominal pain.

Diagnosis:-

* IOP may be Measured by tonometry
* PACG usually visualized by gonioscopy.
* In COAG / POAG - glaucomatous cupping is seen; That mean ↑ IOP appear to push the optic disc back into excavation.
* The colour of optic disc will be observed to change from creamy pink colour due to rich capillary network seen in healthy eye, to increased pallor with advancing disease as the optic nerve tissue progressively atrophies.

GLAUCOMA



10-21

→ Topical therapies :-

Adrenergic agonists :-

2- Adrenergic agonists stimulate alpha and beta receptors and provoke release of nor-epinephrine, the principal neurotransmitter of adrenergic system.

→ Activation of α-2 receptors leads to Vasoconstriction in the ciliary body associated with decrease in aqueous humour prodn

- dipivefrin, Swelling of eye, irritation of eye, scaling of eye

Beta receptor antagonists :-

Beta receptors are expressed throughout the eye, and their antagonists reduces aq. humour prodn in the ciliary body by decreasing intracellular cAMP conc

Eg:- Betaxolol, Carteolol, Levobunolol
Timolol

Side-effects: Dryness, pain, Blurred vision. ocular
Anxiety, Depression, Hallucinations, Sleep disturbance Nausea
↓
systemic

Carbonic Anhydrase inhibitors :-

Carbonic anhydrase is important for aquamous humor production, as through its formation of HCO_3^- ions water can enter ciliary epithelial cells.

* Topical Carbonic anhydrase inhibitors, therefor reduces aqueous humour formation.

Side effects: Ocular burning, bitter taste, blurred vision teaning, Headache, dizziness, Diarrhoea, Drowsiness

Drugs: Acetazolamide, Dorzolamide, Brinzolamide

Miotics :-

Act to increase the outflow of aqueous hoonour by stimulation of ciliary muscle & an opening of channels in a trabecular meshwork. Miotics are directly acting parasympathomimetic agents that act as Muscarinic receptors

Eg: Pilocarpine, Carbachol

ocular Side-effects: pain, Poor night vision

Parasympathomimetics

Parasympathomimetics induce Contraction of smooth Muscle cells in the ciliary body, which leads to an increase in aqueous humor outflow by widening the trabecular Meshwork & Schlemm's Canal.

Side-effects: Intestinal Cramps, bronchospasm, retinal detachment, ciliary Cramps, ↑ pupilary block.

Ex: Apraclonidine, Brimonidine

Apraclonidine, Brimonidine

Prostaglandin derivatives

PGs have been found to increase uveoscleral outflow via binding to PGF receptor, which leads to widening of the ciliary muscle & decompression of the tissue filled spaces along the ciliary muscle bundles

Side effects: burning sensation, stinging, ↑ iris pigmentation

Ex: Letanoprost, Travoprost, Tafluprost, Bimatoprost

eye pain, Eye discharge, Stinging

HCO_3

$Na^+ + OH^- \rightarrow H_2O$

Apraclonidine

Brimonidine

Letanoprost

Bimatoprost

Travoprost

PRINCIPAL
AVANTHI INSTITUTE OF PHARMACEUTICAL SCIENCES
Gumlapally (V), Abdullapurmet (M), Dist. Telangana.

PRESCRIBING GUIDELINES IN GERIATRICS :-

Geriatrics is a Sub-speciality of internal Medicine and family Medicine that focuses on health care of elderly people. It aims to promote health by preventing and treating diseases and disabilities in older adults.

* The old age is defined as the age of retirement. In our Country it is fixed at 60yrs & above.

Risk of Geriatrics :-

✓ prone for infections
✓ prone for injuries
✓ Need Special Assistance
✓ prone for psychological problems
✓ Prone to degenerative disorders
✓ Increased risk for disease, disability & death.

Aim of Geriatric Medicine :-

✓ Maintenance of health in old age by high levels of engagement and avoidance of diseases.
✓ Early detection & appropriate treatment.
✓ Maintenance of Maximum independance.
✓ Sympathetic care and Support during terminal illness.

Prescribing Guidelines :

* When prescribing new Medications review the following issues

(a) Is Medication Necessary ? (i.e) Is there any non-pharmacological treatment).

ppointments (b) Determine therapeutic end points
(c) Assess Risk 'V/s' Benefits
(d) Can one condition treat More than one C
(e) Administration time Matches existing Medici
0 Identify all drugs by generic and also drug
All drugs prescribed should have clinical indications
11 know the side effect profile of drugs you presc
Understanding aging pharmacokinetics & how to decrea
12 Stop all drugs without known benefit, without c
indication.
Always attempt to substitute less toxic drug
Avoid Negative prescribing Cascade (i.e., treating
2 ADE with another drug)
* Need to follow "One disease, One drug, On
3
Principles of Drugs prescribing in Hospitalized
4 Patients :-

5 ADMISSION :- → Review all Medications taken by
→ Assess previous Compliance
6 → Avoid Unnecessary polypharmacy by: using dr
that treat More than one condition.
7 Ex: β-blockers for both HTN & Angina pectoris.
→ Discontinue drugs Unnecessary in hospital
Ex: Urinary Anti-spasmodic when Catheter has be

SAFE PRESCRIBING HABITS :-

* When initiating a new Medication :-
→ Choose agents whose Pk properties in elderly
are known.
→ Begin with a short-acting agent but by

Appointments - time of discharge, Convert to an agent that is given OD/BD, to reduce the caregiver burden at home.

→ If patients require Multiple Medications, avoid whenever possible, drugs that are inhibitors or inducers of Cytochrome P450 hepatic Metabolism, or highly bound to albumin.

Ex:- Ceftriaxone, Diazepam, Lorazepam, Phenytoin, Valproic acid etc.

→ Use Lower than usual Maintenance doses of Medications that are renal excreted. Eg:- Digoxin.

Adverse Drug Events :-

Anytime a pt develops a new or Unexplained Medical problems consider ADE as a cause:
Eg: Delirium, Hypotension, Renal failure etc.

At the time of Discharge-

- Review Medications that were taken by patient prior to admission and evaluate which should be renewed on discharge.

→ Review all Discharge Medications with the patient & family and provide Written instructions.

**** Avoid Symptomatic treatment.

Symptomatic prescribing in the older patient tends to lead to an Vicious Cycle of polypharmacy, Adverse effects and further prescribing to treat these new Symptoms.

**** Avoid Non-prescribed Medication (OTC).

Appointments. Anticipate the pharmacological differences between younger and older patients :-

* Pharmacodynamics :- The older patient's CNS is often more sensitive to agents such as Antipsychotics, Opioids, BNZ etc.
→ Drugs which have toxic GI side effects such as NSAIDs & Opioids, Must be used with caution.
→ Particular care Must be taken with CNS-active drugs that affect balance, Wakefulness, Motor function and perception in older patients prone to falls.

Pharmacokinetics :- The Most important in drug Metabolism in the elderly is a reduction in renal Clearance. Drugs May be excreted at a reduced rate, leading to accumulation & ADEs
Eg: NSAIDs, Aminoglycosides, ACE inhibitors etc.,

Other pharmacokinetic Considerations in older patients:
→ Drug absorption changes little but there may be a Significant increase in absorption of Levodopa.
→ Bioavailability May be increased for drugs which are extensively Metabolized in liver.
Eg). Propranolol, Verapamil etc,
→ Long term use of thiazide diuretics causes only a small change in potassium in the Middle aged, but a Major cause of deficiency in elderly, due to reduced dietry intake.

Side - Effects of Specific Drug Classes:

1) **NSAID's** :- GI bleeding is more common and has more serious consequences in older patients.
* NSAIDs can worsen heart failure or aggravate impaired renal function.
* PCM should be used, if not low dose NSAIDs in addition with PPI or Misoprostol cover or substitute a low-dose opioid.
* Complementary therapies such as acupuncture to help pain Management.
* The Co-prescription of NSAIDs with ACE inhibitors in older patients can lead to disaster.

2) **HYPNOTICS** :- Hypnotics with long half-lives are a significant problem and cause day-time drowsiness, Unsteadiness & Confusion.
* Short-acting ones may also be a problem & should only be used for short periods if essential.
* It is much better to take good history of an older patients sleep habits & suggest sleep hygiene & non-pharmaceutical Measures.

3) **DIURETICS** :- This class of drugs is often overused in the elderly and should not be used for chronic treatment of Gravitational edema where Measures such as leg-raising, increased walking / leg exercises and Compression stockings
⇒ Diuretics used to treat HTN, Cardiac failure shd be reviewed regularly & should assess for pt hydr
⇒ Withdrawal of diuretics require careful Monitoring

Appointments **DIGOXIN:-** Very elderly, daily Maintenance dose should be 125µg. In the renally impaired, it should be 62.5µg.

* 250µg likely to cause toxicity.

DRUGS THAT CAUSE BONE MARROW SUPPRESSION:-

- Cotrimoxazole & Chloramphenicol should only be used, if there is no suitable alternative

ANTI-COAGULANTS AND ANTI PLATELET DRUGS:-

- Beware of GI bleeding and CI such as peptic ulceration.

→ Warfarin should be prescribed when patient have full understanding why the drug is being taken by him.

ANTI-DEPRESSANTS:- Tri-cyclic anti-depressants commonly cause postural hypotension, in older pts should be used carefully.

DIABETIC MEDICATION: Long-acting oral hypoglycemia such as Chlorpropamide & Glibenclamide should be avoided if there is significant risk of hypoglycemia

- Tight diabetic control must be balanced.

USE APPROPRIATE FORMULATIONS:

Some older patients have swallowing problems which may mean that tablets are not the best form in which to prescribe their treatments.

Appointments * Tablets that remain in mouth & Oesophagus for longer duration cause Ulceration.

Some following points can be taken into account to reduce ADR's.

* Need for treatment: Non-pharmacological Measures should be considered as far as possible before starting treatment for diseases like Obesity, Mild HTN & atherosclerosis.

* Choosing the appropriate drug:
If the pt needs treatment, Most efficacious drug with Minimal ADR's targeting the cause than Symptoms should be selected.

* Avoid drugs like β-blockers in hypertensive patients with history of Asthma or reducing dose of DIGOXIN in elderly with renal pt can prevent unwanted ADR's.

* Formulation: Prescribing drugs in the form of syrups, Suspensions & effervescent tablets can improve adherence in elderly and find it easy to swallow.

* Care should be taken not to give drugs in child resistant Containers as pt's with disabilities May find difficult to open.

* Maintaing Record and Periodic Review:
Maintaing drug record will help to check adherence, possible drug interactions ADR's & the Economic Burden of the pt.

- pt's receiving long term therapy should be reviewed Carefully to assess the need for drug.

JUN JUL AUG

Appointments

Treatment Options for Some Commonly Seen diseases :-

* **INSOMNIA** : Instead of unnecessary use of Hypnotics Simple Measures like
  - Avoidance of Beverages in the night
  - Voiding of the bladder before going to bed
  - Shifting to a dark room

* However, if treatment for Insomina is needed Sedative Hypnotics like BNZs can be used.
* Care should be taken to avoid long acting drugs like DIAZEPAM, FLURAZEPAM & CHLORDIAZEPOXIDE as they cause drowsiness, Confusion, Slurred speech Unsteady Gait, falls & day time sleep
* These effects seem to be less with short-active BNZs like TRIAZOLAM & OXAZEPAM
* Intermediate agent such as TEMAZEPAM more useful
* Similarly non-BNZs like ZOLPIDEM, ZALEPLON ZOPICLONE which have little disruption on normal sleep architecture can also be used.

* **ARTHRITIS**:- NSAID's like Aspirin are frequently used to treat diseases like Rheumatoid Arthritis, & ~~Osteoarthritis~~ Osteoarthritis etc GI bleeding associated with such treatment is more common in elderly. Selective Cox-II inhibitor seemed to be promising candidate for long term treatment of chronic treatment.
- Non-pharmacological Measures like, Weight reduction. Warth, exercise, Walking stick etc.
* To relieve pain PCM or Ibuprofen can be used.

Appointments

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Appointments Edema: Measures like elevation of legs, Supportive Stockings and active life style.

Other drugs: Drug induced bleeding is commonly seen in elderly & hence drugs like Cotrimoxazole should be avoided.

* Similarly dose of warfarin is decreased if it causes serious bleeding.

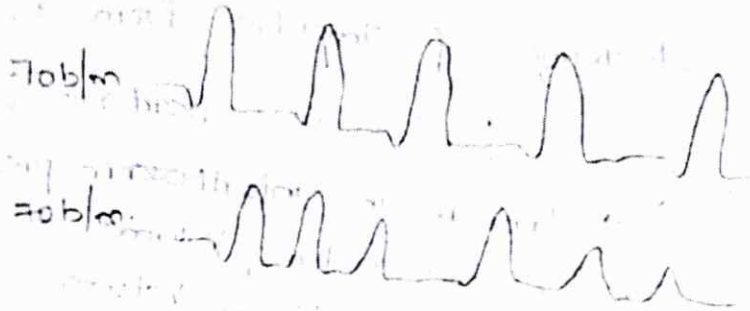
ADHERENCE: Cognitive changes like forgetting to take pills at right time, economic stress due to decreased income, increased expenses due to illness, loss of spouse, physical disabilities etc can reduce adherence in elderly people.

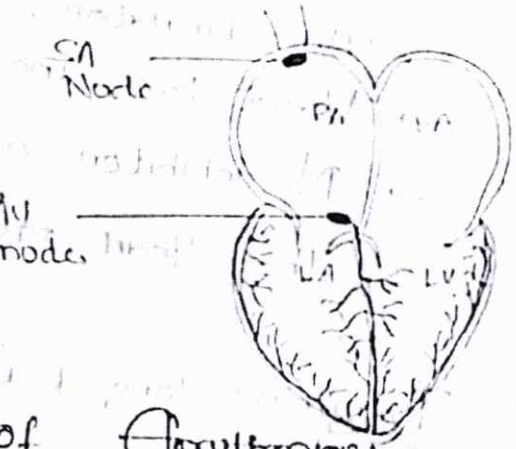
- This can be improved by reducing the number and frequency of drug administration as it is easy to remember.
- Dosage schedule at night times is preferred for anti-psychotics to reduce ADRs like drowsiness, sedation etc.
- Diuretics can be prescribed at day time, to avoid sleep disturbance at night.
- Drugs should be packed in readily openable Containers and labelled in large print & are need for elderly pt's with Arthritis & poor vision.
- Big size tablets & Capsules are avoided
- If many drugs are to be used together they should have distinct colour & shape to avoid Confusion to the patient.

Cardiac Arrhythmia / Dysrhythmia ①

Definition : Arrhythmia refers to a group of conditions that causes irregular heart beat or disturbance in the heart rate, heart rhythm or both. In arrhythmia, heart beat may be too fast, too slow, too early or with an irregular

Arrhythmias occur, when the electrical signals that co-ordinate heart beats are not working correctly.





Types of Arrhythmias:

Arrhythmias are classified on the basis of pace maker

- SA Node
- AV node & Atrial Musculature
- Ventricular Musculature
- Heart block

Pathophysiology

Arrhythmia When SA node works as pace maker :-

Sinus arrhythmia | Sinus Tachycardia | Sinus Bradycardia

(1) Sinus Arrhythmia / Respiratory Sinus Arrhythmia (RSA) :-

Irregularity in heart rhythm / rate originating at Sinus n

Definition:- Rhythmical increase and decrease in heart rate in relation to respiration. (Heart rate varies; according to phases of respiratory cycle.

Causes:- Fluctuations in the discharge of impulses from SA nod

Inspiration:- Heart rate Inc

- Decrease in Intrathoracic pressure
- Increase in Lung Volume.
- Increase in Venous return
- Stretch receptors in lungs stimulate the
- Vagal efferent Impulses,
- Thus inhibition of Vasodilator area.
- Vagal tone decreases
- Thus increase Heart Rate.

Expiration :- Heart rate D

- Increase in intrathoracic pres
- Decrease in lung Volume.
- Decrease in Venous return
- No stimulation.
- Vagal tone increases.
- No inhibiton of Vasodilato
- Thus Heart rate Decrease

Diagnosis:- short R-R interval

Diagnosis:- long R-R interval.

Sinus Tachycardia :- [Fast Heart beat, Heart rate More than 100 b/m].

Definition:- Increase in discharge of impulses from SA node resulting in increase in Heart rate. Discharge of impulses from SA node is very rapid and heart rate increases.

Causes :-

a) Physiologic

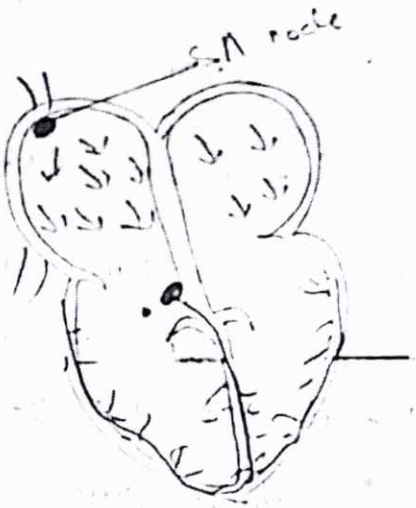
Exercise
Emotion
High attitude
pregnancy.

pathologic :-

→ Fever, Hypovolemia, Dehydration, Anaemia, pain, Hyperthyroidism, Cardiomyopathy, Hemorrhagic shock, CNS stimulants (caffeine, cocaine, Nicotine, Amphitamines etc.; & CHF

Signs and Symptoms :- Cardiac output may fall which causes Dizziness, fainting, Chest-pain, palpitations, heaviness in chest, Shortness of Breath.

Diagnosis :- E.C.G. : Short R-R interval.



Treatment :- β-Blockers, Calcium Channel Blockers
- Treating underlying Cause.
- Life style changes

Sinus Bradycardia :- (Heart rate less than 60 b/min).

Definition :- Sinus bradycardia is the reduction in discharge of impulses from SA node resulting in decrease in heart rate.

Causes :-

Physiologic
- Sleep, Athletic heart

pathological: Disease of SA node, Hypothermia, Hypothyroidism, Heart attack, Congenital Heart Disease, Heart tissue Damage (Myocarditis, Atherosclerosis. Drugs like β-Blo, CCB, Digitals, Antiarrhythmic dru

Signs and Symptoms :-

Dizziness, fainting, fatigue, SOB, reduced exercise tolerance, Sick sinus Syndrome.

Diagnosis : ECG: prolonged P-P interval

Treatment :- Treat underlying conditions
- Regulated anti-arrhythmic drugs.
- pace-maker implantation.

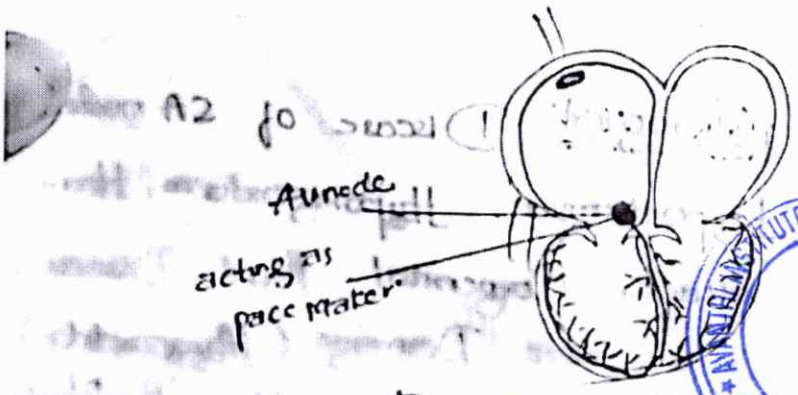
Arrhythmias when AV node & Atrial Musculature as Pace Maker.

* ① Supra Ventricular Tachycardia. (SVT) / paroxysmal SVT

It is Sudden attack of increased heart rate due to ectopic foci arising from atrial Musculature or AV node

Heart rate is > 150 b/min.

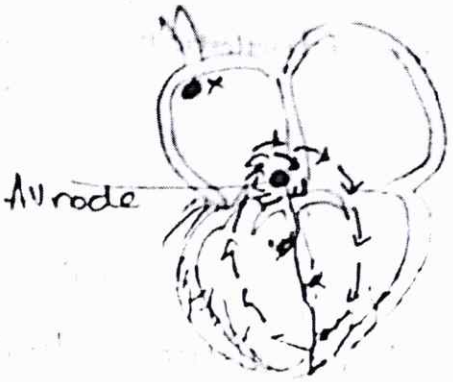
* Atrioventricular nodal Re-entrant Tachycardia.
* Atrial Flutter
* Atrial fibrillation
* Pre-Mature atrial Contractions (PAC).



5 Ectopic foci :- Ectopic cardiac arrhythmia is the abnormal heart r... in which one of the structures of heart other than SA node becomes the ... Impulses produced by these structures are called ectopic foci.

Atrioventricular nodal re entrant Tachycardia :

Impulses arising from AV node due to temporary block in conducting system. There is an extra pathway (abnormal junctional tissue) in heart that causes electrical signals to circulate around and around the AV node instead of moving down to the Ventricles and trigger rapid heart rate.



Atrio Ventricular reciprocating tachycardia :-

Abnormal pathway links the atria and Ventricles causing the signal to move rapidly around and around in a big loop

Causes:- Congenital (Abnormal pathways or electrical circuit in heart)

- Scar tissue from surgery / previous heart attack, (Cause faulty signals).
- CNS stimulants - Caffeine, Alcohol, Smoke, Cocaine amphetamines, stress, Thyroid disease, Sick sinus Syndrome

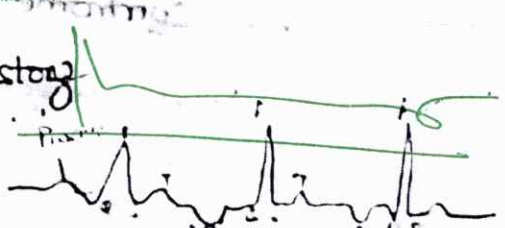
Symptoms:- Regular but racing heart (120 - 230 b/min)

Dizziness, fatigue, SOB, palpitations, fainting.

Diagnosis: physical Examination, Medical history

ECG - 'p' wave is inverted

QRS Complex narrow



Treatment: Anti-arrhythmics - Amiodarone, Atenolol, Dilt..
Digoxin, Flecainide, Quinidine

Anti-Coagulant: Warfarin

Catheter Ablation: Surgeon burns the pathway that causes abnormal signals

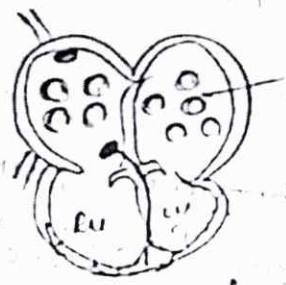
(6)

Atrial fibrillation:

(7)

Electrical signals fire from Multiple locations in atrial Musculature that causes Irregular & rapid heart rate from atria. As a result atria quiver.

- Rapid and irregular atrial Contraction → 300 - 400 b/min



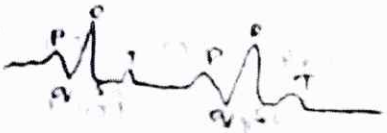
(8)

Atrial Flutter: Rapid and in-effective atrial Contr.. both the atria beat rapidly like the wings of a bird.
Atrial rate 250 - 350 b/min.

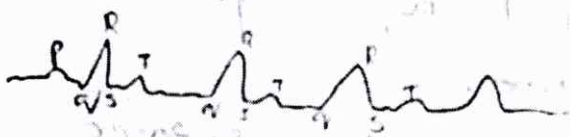
Causes: Family history, Congenital.
- High BP
- CAD
- Abnormal Heart Valves
- Over active Thyroid gland
- CNs stimulants
- Sick Sinus Syndrome
- Previous Heart Surgery
- Viral infections
- Sleep apnea

Symptoms:
- palpitations
- Racing / pounding heart
- Chest pain
- Dizziness
- SOB
- fainting
- fatigue

Diagnosis: ECG - p. wave absent



Sinus Rhythm



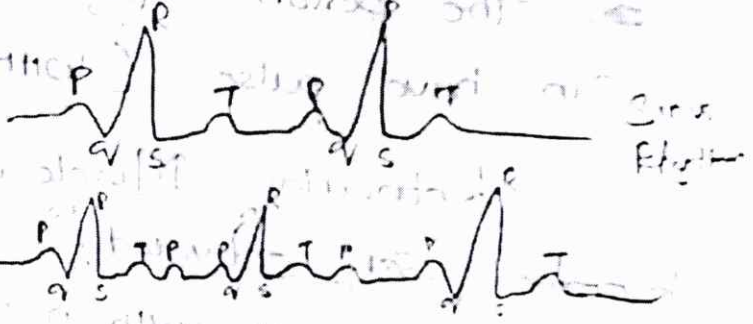
p wave absent [Atrial fibrillation]

Treatment :- Anti arrhythmic, Anticoagulants, Catheter ablation

1) Electrical Cardioversion

Pre-Mature Atrial Contractions (PAC) / Atrial Extrasystole

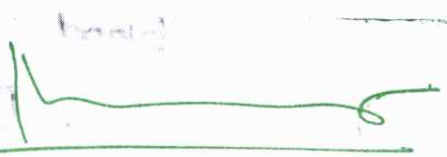
- PAC produced by a stimulus arising from atrial Muscle
- Extra p-wave appears immediately after the regular T-wave.
- Small and shapeless.
- P-R interval is short
- Missed or skipped beat.



Sinus Rhythm

Ventricular Dysrhythmias: Ventricular Musculature as pace-maker.

→ Types: (i) Ventricular Tachycardia.
(ii) Ventricular fibrillation
(iii) Pre-mature Ventricular Contraction (PVC)
(iv) Ventricular Asystole.



Ventricular Tachycardia (VT) / Ventricular paroxysmal Tachycardia (VT)

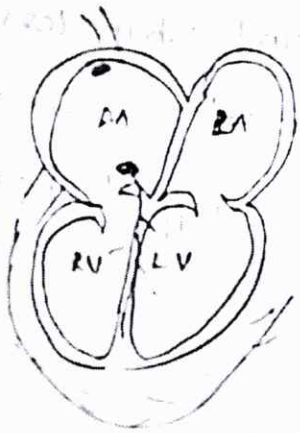
Definition: Sudde increase in heart rate (e) 100 - 200 b/min with regular rhythm caused by ectopic foci arising from Ventricular Musculature.

VT —
- Sustained :- Arrhythmia last :- 30sec
- Non-Sustained : for few seconds

→ In VT, Ventricles beat too fast that it does not get time to relax in between and fill with blood.

→ Eg. The person may not show pulse (pulseless VT).

→ Can have pulse (with pulse VT).



Causes: Ventricular Muscle Cells become self activated;

→ Abnormal Circuit with in the Ventricle Muscle sets in Motion/ triggered.

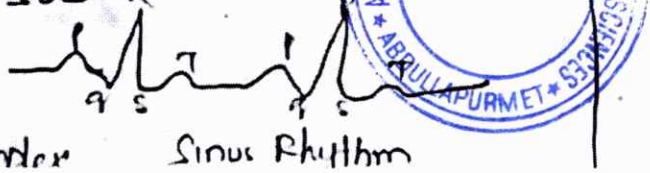
Causes of VT:- CAD, Cardiomyopathy, Abnormal, Heart Valve Heart attack, Electrolyte disturbance, long QT syndrome

Symptoms: Ventricles beats too fast, that it cant pump enough blood to rest of the body:

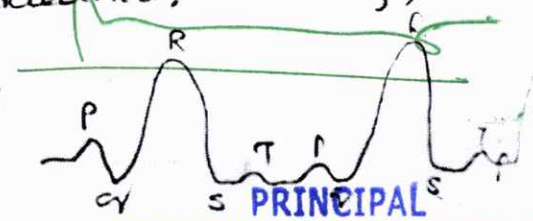
→ palpitations, Dizziness, light headedness, fainting, Chest pain, SOB.

Diagnosis:

ECG:



Wide QRS Complex Sinus Rhythm



Treatment: VT

(i) Without pulse.

→ Requires Immediate Shock (Defibrillator)

- Monophasic (360 Joules)
- Biphasic 200 Joules

* Complications: Ventricular Fibrillation, cardiac arrest

Without | With pulse

With pulse:

Stable
- → Carotid Massage
- → Anti-arrhythmics (β-Blocker)

Unstable
- → Synchronized Cardioversion

Ventricular fibrillation: (V-fib) life-threatening.

- Rapid and irregular beating of Ventricles due to circular movement of impulses with in Ventricular Muscle.
- Heart Rate 400 - 500 b/min.
- In-effective quivering of Ventricles (Not actual pumping) No actual beating, No blood being pumped, No pulse

Causes: CAD, Heart attack, Electric shock, Ischemia, Chloroform, cyclopropane, anaesthesia, Cardiac surgery, trauma

Diagnosis: ECG: Irregular & Disorganised, No pattern, No QRS

Treatment: Defibrillation, CPR (cardiopulmonary resuscitation)

- Anti-arrhythmics (β-Blocker)
- Implantable Cardioverter defibrillator
- Catheter Ablation

Pre-Mature Ventricular Contractions (PVC's)

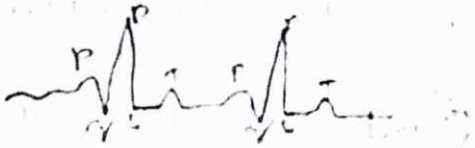
Extra heart beat that begin in Ventricles also called as Ventricular extra systole.

Symptoms: Fluttering (Missed/ skipped beat)

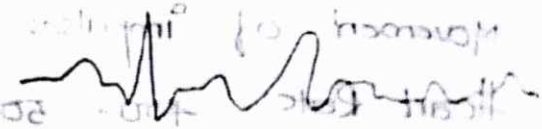
- Increased awareness of heart beat

Causes: PVC's are abnormal extra Contraction in Ventricle after regular heart beat.

- CNS Stimulants, Anxiety, Injury & Ischemia to heart M...
  Can trigger V-fib.



Diagnosis: ECG: Irregular Rhythm.



Treatment: Treating underlying cause
Anti-arrhythmics [lidocaine]

Ventricular Asystole: Commonly Called flat line.

Absent QRS-complex, some P. waves can be appear for a short duration. No heart beat, no palpable pulse No respiration, no electrical activity.

ECG:

Causes:

- CA-D
- Hypovolemia
- Drug over dose
- Hypoxia
- Acidosis
- Electrolyte disturbance
- Hypoglycemia
- Hypothermia.
- Cardiac tamponade (Fluid accumulation in Heart Muscle layer)

Treatment: Ventilation with High Concentration O_2
↓
Continuation of CPR for 2 min
↓
Adrenaline 1 mg/kg
↓
4 min CPR

continued

Epidemiology:- It is estimated that 3.9 millions people in USA have cardiac arrhythmias / cardiac rhythm disturbance and that results in 1,30,000 hospital admissions each year; about 45000 deaths occur each year due to arrhythmias.

Sodium channel Blockers

Treatment :-

1) Sodium Channel blockers:-

A) Intermediate : Quinidine (200-300mg; 6h); Procainamide (500-1000mg; 6h); disopyramide (100-150mg; 6h)

B) Fast : Lidocaine (100mg); Mexiletine (200-300mg, 8h)

C) Slow : Flecainide (50-150mg; 8h); propafenone (150-300mg; 8h)

* Sodium Channel Blockers: A) Quinidine, Procainamide, disopyramide.
* Mechanism:- Binds to open and inactivated sodium channels and prevent Na^+ influx, thus slowing rapid upstroke of phase 0. and also inhibits potassium channels.

Side Effects:- Blurred vision, Headache, tinnitus, anti cholinergic effects

B) Lidocaine, Mexiletine:- Class 1B drugs, rapidly associate and dissociate from sodium channels, and delay the action potential.

Side-effects:- CNS toxicity including seizures, Nausea, Vomiting

C) Flecainide, propafenone:- Class 1c drugs slowly dissociat resting sodium channel and slow down the action potential.

Side-Effects: Dizziness, Blurred vision, Fatigue

Treatment: Ventilation with High Concentration O2
↓
— Continuation of CPR for 2 min
↓
Adrenaline 1mg 1kg

continued

4 min CPR

(11)

Epidemiology:- It is estimated that 3.9 millions people in USA have cardiac arrhythmias / Cardiac rhythm disturbance and that results in 1,30,000 hospital admissions each year; about 15000 deaths occur each year due to arrhythmias.

Sodium channel ~~cb~~

Treatment :-

1) Sodium Channel blocker:-

(A) Intermediate : Quinidine (200-300mg) 6h ; Procainamide (500-1000mg) 6h ; disopyramide (100-150mg) 6h

(B) Fast : Lidocaine (100mg) ; Mexiletine (200-300mg, 8h)

(C) Slow : Flecainide (50-150mg) (8h) ; propafenone (150-300mg, 8h)

* Sodium Channel Blocker (A) Quinidine, Procainamide, disopyramide.

* Mechanism :- Binds to open and inactivated sodium channels, and prevent Na^+ influx, thus slowing rapid upstroke of phase 0. and also inhibits potassium channels.

Side effects :- Blurred vision, Headache, tinnitus, anti cholinergic effects

(B) Lidocaine, Mexiletine :- Class 1B drugs, rapidly associate and dissociate from sodium channels, and delay the action potential.

Side-effects :- CNS toxicity including seizures. Nausea, Vomiting

(C) Flecainide, propafenone :- Class 1C drugs: slowly dissociate resting sodium channel and slow down the action potential.

Side effects: Blurred vision, Nausea

12

Class II :- β - Blockers: Propranolol, Metoprolol, Esmolol.
These are β- adrenergic antagonists. These drugs diminish phase 4 depolarization depressing automacity, prolonging AV conduction and decreasing heart rate and Contractility.
Side - Effects: Fatigue, dizziness, Nausea, Vomiting.

Class - III Anti- arrhythmic drugs: potassium Channel Blocker
Ex:- Amiodarone, Sotalol, dofetilide.
- This diminish the outward potassium current during repolarization phase '0' of depolarization or resting Membrane potential.
These agents prolong the duration of action potential, without affecting
Side - effects: pulmonary fibrosis, blue grey skin discoloration, Neuropathy, Hepatotoxicity.

Class (IV) Anti- arrhythmic drugs: Calcium Channel Blockers.
Diltiazem, Verapamil.
→ They decrease the inward current Carried by Ca^{+2}, resulting in a decreased rate of phase 4 Spontaneous depolarization. They also slow the conduction from AV node.
Side - effects: Head ache, Dizziness, constipation, Nausea.

Other Cardiac Anti- arrhythmic Drugs.

Digoxin: shortens the refractory period in atrial & Ventricular Myocardial cells while prolonging effective refractory period and diminishing Conduction Velocity in AV node
Side effects: Dizziness, Mental disturbances, Nausea, Vomiting.

Adenosine: Decrease Conduction Velocity, prolong refractory period and decrease automacity in AV node.
Side effects :- Flushing, Hypotension.

Code No: PH206

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD
Pharm.D II Year Regular/Supplementary Examinations, July/August - 2021
PHARMACOTHERAPEUTICS-I

Time: 3 hours **Max.Marks:70**

Answer any five questions
All questions carry equal marks

\- - -

1.a) Discuss the role of beta blockers in Heart Failure.
b) Describe briefly the management of ST segment elevation Myocardial Infarction. [7+7]

2.a) Write a note on Microvascular and Macrovascular complications of Diabetes mellitus.
b) Describe the etiology, pathogenesis and management of Angle closure Glaucoma. [7+7]

3.a) Explain the different Pulmonary Function tests employed in the diagnosis of respiratory disorders with their significance.
b) What is nitrate tolerance? Write a note on management of Nitrate Tolerance. [7+7]

4.a) Describe the Pharmacological management of Atrial fibrillation.
b) Discuss the etiology of Bacterial conjunctivitis. [7+7]

5.a) Explain the Pathogenesis and treatment of Myocardial Infarction.
b) Write the management of Thyroid storm. [7+7]

6.a) Write briefly on Hormone replacement therapy.
b) Explain the general prescribing guidelines for Pregnancy. [7+7]

7.a) Discuss the Pharmacological management of Diabetes Mellitus.
b) Enlist the types of Insulin Preparations. [7+7]

8.a) Discuss the Class I and Class II drugs used in the treatment of Arrhythmias.
b) Describe the Pharmacological treatment of Diabetic neuropathy. [7+7]

---ooOoo---

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PRINCIPAL
AVANTHI INSTITUTE OF
PHARMACEUTICAL SCIENCES
Gunthapally (V), Abdullapurmet (M),
R.R. Dist. Telangana.

AVANTHI INSTITUTE OF PHARMACEUTICAL SCIENCES

Gunthapally (V) Abdullapurmet (M), R.R. Dist

II-Year I-mid Internal Examination

Subject: Pharamcotherapeutics-I

Time :2 hr

Marks: 30

MID-I

1. Define hyper tension. What are the various grades of hyper tension ?
2. Write a note on pharmacotherapy of chronic heart failure?
3. Write the pharmacotherapy of Dyslipidemia?
4. Define acute coronary syndrome and write note on Etiopathogensis of acute coronary syndrome?
5. Define angina and write pharmacotherapy of angina pectoris?
6. Write the therapeutic guidelines of hypertension?
7. Write a note on risk factors and complications of Dyslipidemia?
8. Write a note on pharmacotherapy of acute coronary syndrome?

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PRINCIPAL
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Gunthapally (V), Hayath Nagar (M),
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AVANTHI INSTITUTE OF PHARMACEUTICAL SCIENCES

Gunthapally (V) Abdullapurmet (M), R.R. Dist

II-Year II-mid Internal Examination

Subject: PHARMACOTHERAPEUTICS – I

Time:2 hr

Marks: 30

MID-II

1. Explain briefly about thyroid diseases?
2. Explain in detail about hormone displacement therapy ?
3. Write about drug induced pulmonary diseases?
4. Define osteoporosis and write about its treatment?
5. A)Clinacal manifestations of Asthma?

   B) Etiology of COPD ?
6. Explain pharmacotherapy of the glaucoma?
7. Write etiopathogensis of the Diabetes?
8. Explain briefly about oral contraceptives?

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AVANTHI INSTITUTE OF PHARMACEUTICAL SCIENCES

(Approved by A I C T E, Recognised by Govt. of T.S. & Affiliated to J N T U, Hyderabad)

Gunthapally (V), Abdullapurmet (M), R.R. Dist., Near Ramoji Filmcity, Hyderabad - 501 512.

INTERNAL DISCRIPTIVE EXAM

NAME : B. Krupakar Goud

DATE: 16/12/2022

ROLL No.: 18N01T0023

Subject: pharmacotherapeutics-I

CLASS : IV year pharm-D SEM mid-I

SIGNATURE OF THE INVIGILATOR'S:

SIGNATURE OF THE STUDENT : Krupakar Goud

TOTAL MARKS: 28/30

1.

→ Hypertension is defined as → persistently elevated arterial blood pressure (BP)

→ Classification of BP in adults (age 18 years and older)

S. NO	classification	systolic (mm Hg)	Diastolic (mm Hg)
1.	Normal	< 120	< 80
2.	Prehypertension	120 - 139	80 - 89
3.	Stage 1 hypertension	140 - 159	90 - 99
4.	Stage 2 hypertension	≥ 160	≥ 100

⇒ Isolated systolic hypertension

- → Diastolic blood pressure (DBP) → < 90mm Hg
- → Systolic blood pressure (SBP) → > 140 mm Hg and more

⇒ Hypertensive crisis (BP > 180/120 mm Hg)

may be categorized hypertensive emergency / hypertensive emerg

BP. Elevation with acute (progressing end-organ damage (mainly nitro prusside used)

* Pathophysiology :

Hypertension may result → from unknown etiology (1° or essential hypertension)

→ from specific cause (2° HTN)

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factors contributing to development of 1° hypertension includes

- Humoral abnormalities involving the RAAS (or) natriuretic hormone
- Disturbance in the CNS autonomic nerve fibers adrenergic receptors (or) baro receptors
- Abnormalities in renal (or) tissue autoregulatory process for sodium excretion plasma volume extracellular constriction.
- Deficiency in synthesis of vasodilating substances in vascular endothelium
  - (prostacyclin, bradykin, Nitric oxide) (or) excess vasoconstricting substances
- ↑ Na^+ intake (or) lack of dietary Ca^{+2}

→ main causes of death are
- cerebrovascular events
- cardiovascular events
- renal failure

→ probality of premature death correlates with → severity of BP elevation.

* Clinical presentation :

→ patients → with 1° hypertension are a symphomatic initially.

→ patients → with 2° HTN → having symtoms

patients with pheochromocytoma
- headaches
- sweating
- tachycardia
- Papitations

in 1° aldosteronism
- hypokalemic symptoms
- muscle cramps
- weakness.

2)

Definition :

→ It is a physiolgic state in which heart is unable to pump enough blood to meet the metabolic needs of body at rest or during exercise eventhough filling pressures are adequate.

→ The name CHF & CCF doesn't mean heart has actually failed or stopped but mean one/ more chambers of heart has failed to keep up with the volume of blood flowing through them.

→ CHF is a serious progressive condition that is usually chronic and can be life threatening.

→ failure could begin on the LEFT or Right side of your heart or both side may fail at the same time. [BIVENTRICULAR HEART FAILURE]

Systolic Dysfunction

[Reduced Ejection fraction]

→ Heart muscles are two weak the ventricles stretch out [enlarge, floppy, dilated] and failed to contract efficiently less blood is pumped out.

Diastolic Dysfunction

[Preserved Ejection fraction]

→ Heart muscles become stiff thick, rigid inelastic. so that they no longer fill properly [can not properly during diastole] less blood in ventricles.

→ less blood to body during condition.

Causes of CHF

Systolic Dysfunction

→ Ischemic Heart disease

→ Hypertension

→ Large salt intake

→ Diabetes

→ Myocarditis

→ over weigh, smoke, alcohol, cocaine

→ Heart valve disease

→ Dilated cardiomyopathy

→ Arrhythmias [Abnormal Heart]

Diastolic Dysfunction

→ Cardiomyopathy [HYPERTROPIC & RESTRICTIVE]

Hypertension

-> myocardial Infarction

-> constrictive myocarditis

-> cardiac temponade

-> myocarditis

-> Aortic stenosis

-> Amylodosis

-> Humochromatosis

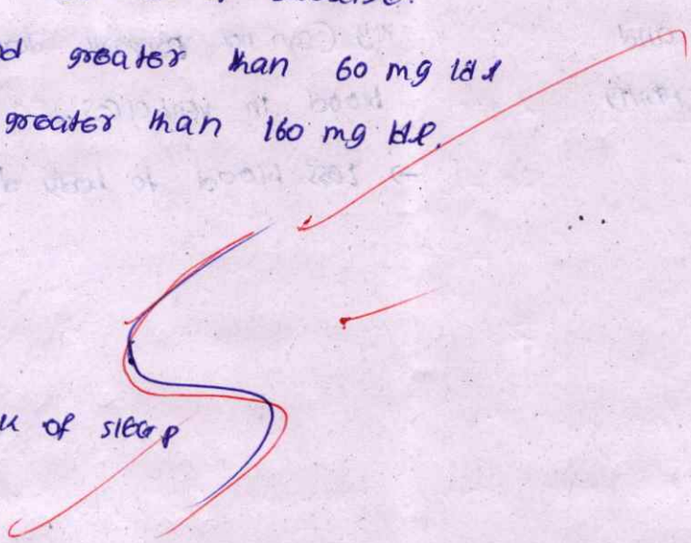
3) Hyperlipedimia

-> ↑ amt of Cholesteral in blood vessels

-> BCOZ :- causes :- 1) alcohol
2) smoking
3) Junk food
4) stress
5) Lack of exercise.

-> HDL → is good greater than 60 mg ldl

-> LDL → bad greater than 160 mg HLP.



* Symptoms :

-> obesity

-> edema

-> Insomenia → lack of sleep

-> Joint pains

* Drugs :

-> anticoagulants

* Precautions :

-> Transfatty acid foods
-> Avoid alcohol, smoking
-> Avoid stress

* Adverse effects :

-> Tachcardia
-> Hemolysis
-> drowsiness
-> Digestive system

→ Per 12.5 million people → prone to blindness

U.K → 13% glucoma blindness cases

2% occured to the 40 years age group people above 75 years.

Because of

→ Ciliary body gets stimulated it leads of over production of humar

→ Because of get humar production resistence outflow of aq humor in see the condition glaucoma.

Hyperlipidemia

→ Increases of triglycerides alcholesteral level in blood.

Normal values of TC : < 200 mg/dl

TG : < 150 mg/dl

HDL : 40 mg/dl or higher

LDL : < 100 mg/dl

→ Increases in the lipid bodies in the condition is called hyperlipidemia

Epidemiyology

→ males are more affected compare to women due to smoking & alchol

→ more common in western countries.

Risk factors

→ Family history of Hyperlipidemia

→ Alchol consumption

→ Smoking

→ DM

→ obesity

→ mypothyroidism

not treated triglycoral and cholestral levels ↑ in serum.

Angina pectoris / Ischemic chest pain

ef :- Angina pectoris latin phrase strangling in the chest Angina is a chemical syndrome characterized by episodes of pain or pressure in the centre the chest just behind the breast.

It occurs when the heart muscle doesn't get as much as blood (hence as it needs because of narrowed or blocked coronary blood vessels.

→ Angina is a symptom of a condition called myocardial ischemia

Types of Angina

1) Chronic stable angina
2) unstable angina
3) variant angina

Chronic Angina

Fixed stenosis / Demand angina

→ Chronic narrowing of coronary arteries due to atherosclerosis

→ Tissue become ischemic particularly during times of increased or demand

→ Physical exertion, large meal, emotional stress

→ lasts less than 5min relived by rest or medication.

variant angina

pericardial supply ischemia,

→ Results from coronary vasospasm, which temporarily reduces coronary blood flow

→ Emotional stress, dysfunctional coronary vascular occurs during night or rest.

Unstable Angina

Thrombus supply ischemia

→ caused by formation and dissolution of a blood clot (thrombus) with in a coronary artery.

→ symptoms worse severe pain last longer, occurs at rest, not relieved by nitroglycerin.

Causes and Risk factors of angina :

→ Age, and ~~Gender~~ women above 55. and MG (>45)
→ Atherosclerosis
→ smoking, obesity : DM
→ High BP
→ High blood cholesterol or triglyceride
→ Excess intake of fat or salt
→ Eating a heavy meal
→ ~~Stress~~ emotional stress
→ Family history of CAD.

Acute Chorornary syndrome

5)

If stable/angina is not treated then it leads to ACS medical emergency.

→ In ACS ⟶ erosion/rupture of atherosclerotic plaque

→ It leads to formation of lot in coronary artery

↓

Sudden reduced blood flow to heart

↓

Necrosis/myocardial Infarction

ACS is classified into 3 types

1) Unstable Angina
2) NSTEMI (non-ST-segment-Elevation MI)
3) STEMI (ST-segment-Elevation myocardial)

① Unstable Angina

→ Erosion of plaque occur but no complete blockage occur

→ No infarction of heart muscle

② NSTEMI

→ No complete blockage of coronary artery but their is infarction of heart muscle.

③ STEMI

→ That artery supplies oxygen rich blood to part of heart Branches of CA

→ Blockage only in 1 vessel ⟶ single vessel disease

→ Blockage only in 2 vessel ⟶ double vessel disease

→ Blockage only in 3 vessel ⟶ ~~vessels~~ Triple vessel disease

Treatment

Aspirin (Anti platelet drug)

Clot in artery composed of platelets

Clot in vein composed fibrin

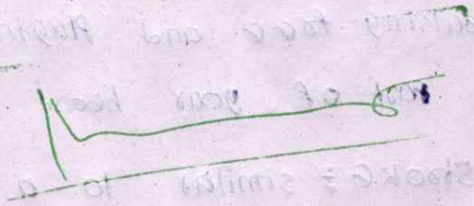
Anti platelet drug

1) Aspirin
2) Clopidogrel
3) Ticagrelar

→ Drugs used are Anticoagulant in veins

→ Drugs used are antiplatelets in artery

→ They prevent progression of clot.



5) Factors that can increase your risk of unhealthy cholesterol levels include:

→ Poor diet : Eating too much saturated fat or trans fats can result in unhealthy cholesterol levels. Saturated fats are found in fatty cuts of meat and full-fat dairy products. Trans fats are often found in packaged snacks or desserts.

→ Obesity : Having a body mass index (BMI) of 30 or greater puts you at risk of high cholesterol.

→ Lack of exercise : Exercise helps boost your body's HDL the good cholesterol.

→ Smoking : Cigarette smoking may lower your level of HDL - the "good" cholesterol

→ Alcohol : Drinking too much alcohol can increase your total cholesterol level.

→ Age : Even young children can have unhealthy cholesterol but it's much more common in people over 40. As you age your liver becomes less able to remove LDL cholesterol. High cholesterol can cause a dangerous accumulation of cholesterol and other deposits on the walls of your arteries (atherosclerosis). These deposits (plaques) can reduce blood flow through your arteries, which cause complications, such as:

→ Chest pain : If the arteries that supply your heart with blood clot can form at (coronary arteries) are affected, you might have chest pain (angina) and other symptoms of coronary artery disease.

→ Heart attack : If Plagues tear or rupture a blood clot can form at the plaque - rupture site - blocking the flow of blood or breaking free and plugging an artery downstream. If blood flow to to part of your heart stops, you'll have a heart attack.

→ Stroke : similar to a heart attack a stroke occurs when a blood clot blocks blood flow to part of your brain.

AVANTHI INSTITUTE OF PHARMACEUTICAL SCIENCES

(Approved by A I C T E, Recognised by Govt. of T.S. & Affiliated to J N T U, Hyderabad)

Gunthapally (V), Abdullapurmet (M), R.R. Dist., Near Ramoji Filmcity, Hyderabad - 501 512.

NAAC NATIONAL ASSESSMENT AND ACCREDITATION COUNCIL B++ GRADE

PCI APPROVED

INTERNAL DISCRIPTIVE EXAM

NAME : Shreya

DATE: 25/02/21

ROLL No.: 18CMT0022

Subject: pharmacotherapeutics - I

CLASS : II year pharm.D SEM md-II

SIGNATURE OF THE INVIGILATOR'S:

SIGNATURE OF THE STUDENT Shreya

TOTAL MARKS 27/30

1. Hypothyroidism

Hypothyroidism results from inadequate secretion of thyroid hormones, which virtually alters the function of every organ system. The typical nonspecific signs of hypothyroidism include fatigue, cold intolerance, weight gain, constipation, dry skin brittle nails, hoarse voice, hair loss, and overall body aches Levothyroxine sodium is the drug of choice for thyroid replacement, because it is chemically stable free of antigenicity has a long half-life and is relatively inexpensive. Dosage must be carefully adjusted according to individual requirements and response. The average daily dose of levothyroxine in adults up to 50 years of age is 1.6 mcg/kg of actual body weight (100-125 mcg/day for a 70-kg adult).

Levothyroxine requirements and change with age, preexisting cardiovascular disease, long-standing hypothyroidism and pregnancy. Parenteral levothyroxine sodium is available and is usually reserved for patients with myxedema coma the condition caused by acute hypothyroidism. Intramuscular

njection is discouraged because absorption is variable
ntravenous doses should be half the oral dosage because
ral doses are only absorbed approximately 40% to 80%.
ypothyroidism also known as thyrotoxicosis, occurs when
ssues are exposed to excess thyroid hormone. The most
common cause of hypothyroidism is Graves disease
n autoimmune disorder that produces antibodies against
hyroid-stimulating hormone receptors. This process stimulates
the thyroids gland to synthesize and secrete excess
thyroid hormones and triiodothyronine. It lists other
causes of hypothyroidism. signs and symptoms of
excess thyroid hormone are dependent on the patient's
age duration of illness, and extent of hormone
excess in the circulation. These signs and symptoms
are listed in. when evaluating patients for hypothyroi-
dism, a thorough physical assessment should be
obtained including weight and blood pressure
pulse rate and cardiac rhythm, cardiovascular
examination, thyroid palpation and auscultation (for
size, nodularity and vascularity), as well as neuromus-
cular, eye, skin, and lymphatic examination. In
addition to the physical examination listed above
laboratory tests must be performed to confirm the
diagnosis of hyperthyroidism..)

22)

Hormone replacement therapy (HRT) is supplementing women with hormones that are lost during the menopausal transition. To relieve the symptoms associated with menopause conventional HRT includes an estrogen and progesterone component to mimic hormones created by the human ovary Estrogen therapies are numerous and include those indigenous to the human ovary for example estradiol (CEE) the most commonly prescribed estrogen in the united states.

Objectives :

- Identify the different formulas of hormones for replacement therapy
- Describe the adverse effects and contraindications of hormonal replacement therapy.
- Summarize the indications of hormone replacement therapy.

Indications :

Hormone replacement therapy is supplementing women with hormones lost during the menopausal transition. To relieve the symptoms associated with menopause conventional HRT includes an estrogen and progesterone component to mimic hormones created by the human ovary replacement therapy see our companion statpearls reference article on male Hypogonadism.

- Treatment of vasomotor symptoms of menopause
- Treatment of genitourinary syndrome of menopause (previously known as vaginal and vulvar atrophy)
- prevention of osteoporosis.

Administration

There are numerous estrogen and progestogen choices and they may be administered orally or transdermally either through cream, patch, vaginal inserts, or subdermal pellets each route of administration has unique benefits and risks.

oral estrogen: Any estrogen administered orally results in increased activated protein-C resistance increasing the risk of a blood clot. oral estradiol also formation and rupture of atherosclerotic plaque.

Transdermal Estrogen: Bypasses the hepatic metabolism that produces activated protein-C resistance and the risk for blood clotting is negated.

Adverse Effects

when studying the potential adverse effects of HRT the most referenced information in the united states comes from the women's Health Initiative.

WHI Trial

This was a multifaceted trial including two double blind placebo-controlled, randomized trial of postmenopausal hormone therapy.

HRT and the Breast

The CEE/MPA arm was discontinued earlier than expected due to an increased incidence of invasive breast cancer of 24% (HR=1.24) The CEE only arm was not discontinued early completed in 2004 and extended follow-up of patients has continued for 11.8 years.

3)

many types of lung injury can result from medicines It is usually impossible to predict who will develop lung disease from a medicine

Types of lung problems or diseases that may be caused by medicines include.

- Allergic reaction - asthma, hypersensitivity pneumonitis, or eosinophillic pneumonia
- Bleeding into the lung air sacs, called alveli. (alveolar hemorrhage)

- swelling and inflamed tissue in the main passages that carry air to the lungs (bronchitis)
- Damage to lung tissue (interstitial fibrosis)
- Drug that cause the immune system to mistakenly attack and destroy healthy body tissue such as drug-induced lupus erythematosus.
- Granulomatous lung disease - a type of inflamation in the lungs
- Inflammation of the lung air sacs (Pneumonitis or infiltration)
- Lung vasculitis (inflammation of lung blood vessels).
- Lymph node swelling
- swelling and irritation (inflammation) of the chest area between the lungs (mediastinitis)
- Abnormal buildup of fluid in the lungs (pulmonary edema)
- Buildup of fluid between the layers of tissue that line the lungs and chest cavity (pleural effusion)
- Abnormal pressure of the arteries that bring blood to the lungs (pulmonary hypertension)

many medicines and substances are know to cause lung disease in some people. These include;

- Antibiotics, such as nitrofurantoin and sulfa drugs
- Heart medicines, such as amiodarone
- Chemotherapy drugs such as bleomycin, cyclophosphamide and methotrexate
- Immunotherapy drugs that are used to treat cancer
- Street drugs.

. what is osteoporosis

osteoporosis is a disease that weakens your bones. It makes your bones thinner and less dense than they should be. People with osteoporosis are much more likely to experience broken bones. your bones are usually dense and strong enough to support your weight and absorb most kinds of impacts. As you age, your bones naturally lose some of their density and their ability to regrow themselves. If you have osteoporosis your bones are much more fragile than they should be and are much weaker. most people don't know they have osteoporosis until it causes them to break a bone. osteoporosis can make any of your bones likely to break. but the most commonly affected bones include your:

- Hips (hip fractures)
- wrists
- spine (fractured vertebrae)

The sooner a healthcare provider diagnoses osteoporosis the less likely you are to experience bone fractures. Ask a healthcare provider about checking your bone density, especially if you're over 65, have had a bone fracture after age 50, or someone in your biological family has osteoporosis.

How common is osteoporosis?

more than 50 million people in the U.S. live with osteoporosis osteoporosis is common in people over 50. Experts estimate that half of all people assigned female at birth and 1 in 4 people assigned male at birth over 50 have osteoporosis.

studies have found that 1 in 3 adults over 50 who don't have osteoporosis yet have some degree of reduced bone osteoporosis.

5)

Glaucoma is a group of diseases involving the optic nerve and associated structures, which is characterized by progressive visual field loss and typical changes of the optic nerve head (ONH). The only known treatment of the disease is reduction of intraocular pressure (IOP), which has been shown to reduce glaucoma pro-gression in a variety of large-scale clinical trials. Nowadays, a relatively wide array of topical antiglaucoma drugs is available, including prostaglandin analogues, carbonic anhydrase inhibitors, beta-receptor antagonists, adrenergic agonists and parasympathomimetics. In clinical routine this allows for individualized treatment taking risk factors, effect and safety into account. A major challenge is related to adherence to the sustained related to adherence may be minimize this problem but is not available for clinical routine use Another hope arises from non-IOP-related treatment concepts.

Background

GLAUCOMA REFERS TO A GROUP of multifactorial optical neuropathies associated with progressive loss of retinal ganglion cells (RGCs) leading to a characteristic pattern of visual field loss. Although there is general agreement that increases intraocular pressure (IOP) is the most portant risk factor for onset and progression of the disease it is by far not the only risk factor. IOP reduction the mainstay of glaucoma therapy. The review gives an overview of the current status of Pharmacotherapy of glaucoma, a short outlook on future therapies on the horizon and discuss some of the challenges in translating such strategies in clinical applica

Abstract

iopathogensis of types 2-diabetes is complex and still partially nknocon. Its ethology is determined by the interaction of genetic nd environment factors. The genetic contribution is important but s a polygenic origin. obesity, especially when fat mass is referably located in the abdomen is the main predisposing factor r type 2 diabetes and almost 80% of diabetic patients are verweight or obese. The diabetogenic effect of obesity is ue to the capacity of excessive fat mass to induce or aggravate insulin resistance. Increasing lack of physical activity s also a contributing factor as in it increases insulin resistance As far as it increases insulin pathophysiology is concerned the development of type 2 diabetes results from the coexistence of abnormalities of insulin secretion and insulin action. Insulin secretory dysfunction, whose underlying mechanism remains poorly understood is characterized by a relative defect in circulating insulin action is located in the liver (increased hepatic glucose production), in the skeletal muscle (decreased muscular glucose uptake) and in the adipose tissue. mechanism remains poorly understood is characterized by a relative defect in circulating insulin levels of variabl severity Resistance to insulin action is located in the liver (increased hepatic glucose production) in the skeletal muscle (decreased muscular glucose uptake) and in the adipose tissue (exaggerated lipolysis with elevated plasma free fatty acids). Changes in life-style habits.

ASSIGNMENT- I

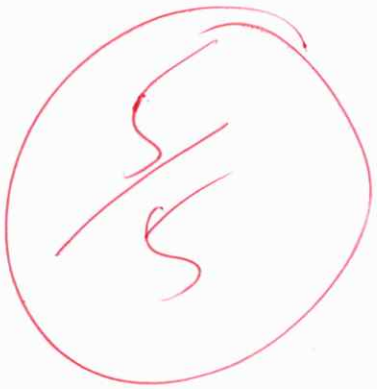
Name : Shreya

Class : pharm D - II year

Roll NO : 19GN1T0021

subject : pharmacotherapeutics - I

Topic : Drug profile.



17

=> METHOTREXATE ;

It is an Antineoplastic agent used in the treatment of wide variety of cancers.

Mechanism of action ;

The mechanism of action of methotrexate are complex developed as a folic acid analogue methotrexate inhibits purine and pyrimidine synthesis which accounts for its Efficacy in the therapy of cancer. as well as for some of its toxicities.

Indications ;

methotrexate is indicated in the management of selected adults with severe, active rheumatoid arthritis (ACR criteria) or children with active - polyarticular - course Juvenile rheumatoid arthritis who have had an insufficient therapeutic Response to or are intolerant of an adeavate trail of first line therapy.

Contraindication ;

patients with psoriasis or rheumatoid arthritis with alcholism, alcholic liver disease or other chronic liver disease should not Receive methotrexate.

Adverse effects;

- Black, tarry stools
- Blood in urine
- increased Heartbeat
- itching rash
- stomach pain

Drug-Drug interaction.

- Acitretin + methotrexate

acitretin & methotrexate either increases toxicity of the other. by pharmacodynamic synergism Contraindicated Risk of additive hepatotoxicity.

- Leflunomide + methotrexate.

leflunomide increase toxicity of methotrexate by pharmacodynamic synergism Avoid Alternate drug Additive hepatotoxicity pancytopenia.

2) METFORMIN:

metformin is the first line medication for treatment of type 2 diabetes · particularly in people who are over weight

- It is sold under brand nage Glucophage.

mechanism of action:

The centre of metformin's mechanism of action is the alteration of energy metabolism of cell metformin exerts its prevailing glucose lowering effect by inhibiting hepatic gluconeogenesis. and opposing the action of glucagon.

Indications:

- The indications includes gestational diabetes. management of antipsychotic induced weight gain type-2 diabetes prevention of polycystic ovary syndrome (PCOS)

contraindication:

- Renal dysfunction
- congestive cardiac failure needing drug treatment
- Impaired hepatic function

Adverse effects;

- Nausea
- Diarrhoea
- stomachache
- loss of appetite

Drug - Drug interaction;

- metformin + insulin aspart.

metformin, insulin aspart either increase effects of the other by pharmacodynamic synergism use monitor. dosage adjustment may be required when discontinuing antidiabetic agents.

3) METHIMAZOLE;.

It is also known as Tiamazole. It is used to treat hyperthyroidism This includes Graves disease. Toxic multinodular goiter and Thyrotoxic crisis.

Mechanism of action;

methimazole may also interfere with oxidation of iodide ion and iodotyrosyl groups. Eventually. Thyroglobulin gets depleted and circulating thyroid Hormone level decrease It may also help to control disease by affecting the overall immune system.

4)

MECLIZINE;

-> It is an Antihistamine that is used to prevent and treat nausea, vomiting, and dizziness caused by motion sickness.

mechanism of action;

It is a first generation antihistamine it also has central anticholinergic actions the blocking actions on these receptors give meclizine the antiemetic and antivertigo properties.

Indications;

It is used to manage and treat nausea, vomiting and dizziness caused by motion sickness and vertigo.

meclizne belongs to a drug class called antihistamines, which are often used to treat allergies.

Contraindications;

patient should avoid alcoholic, beverages Tranquilizers and sedative while taking meclizine due to increased risk of CNS depression.

Indication :

methimazole is used to treat hyperthyroidism a condition that the thyroid gland produce too much thyroid Hormone.

- It also taken before thyroid surgery or radioactive iodine therapy.

Contraindications :-

methimazole contraindicated if there is Hypersensitivity to the drug or any of its components

- It is relatively contraindicated during pregnancy.

Adverse effects :

- chest pain
- SOB.
- difficulty in breathing
- dizziness
- General feeling of discomfort.

Drug interaction :-

methimazole + cadexomer, iodinated glycerol iodine.

Adverse Effects:

- cough
- drowsiness
- hives, itching, skin rash
- unusual tiredness or weakness

Drug interactions:

meclizine can interact with sleep medications Benzodiazepines and allergy medications like Benadryl. It can also interact with opiods dronabinol and alcohol.

5) MUPIROCIN:

Mupirocin is a topical Antibiotic.

Mechanism of action:

The drug is a unique antimicrobial agent because of its structure and mechanism of action mupirocin apparently exerts its antimicrobial activity by reversibly inhibiting isoleucyl-transfer RNA There by inhibiting bacterial protein and RNA synthesis.

Indications:

mupirocin topical cream is used to treat secondarily infected traumatic skin lesions due to specific bacteria..

It is used to treat impetigo.

Contraindications;

prolonged use of mupirocin is not recomended because of possible growth of Resistant organism including fungi.

mupirocin side Effects;

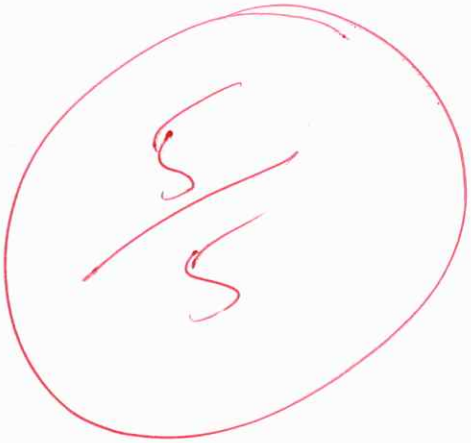
- Blistering, Peddening of skin
- Canker sores
- cracked dry
- scaly skin
- sores, ulcers

ASSIGNMENT-II

Name : B. Krupakar Goud

Roll NO : 21N1T0029

subject : pharmacotherapeutics - I



Ofloxacin.

Generic name: ofloxacin
Brand name : ocuflox

Background :
A synthetic fluroquinolone antibiotic, antibacterial agent that inhibits the supercoiling activity of bacterial DNA gyrase, halting DNA replication

Indications :
for the treatment of infection [respiratory track, kidney, skin, soft tissue, UTI] urethral and the cervical gonorrhoea.

Pharmacodynamics :
Ofloxacin is a Quinolone / fluroquinolone antibiotic
Ofloxacin is bactericidal and its mode of action depends on blocking of bacteria DNA replication by binding itself to an enzyme called DNA gyrase which allows the untwisting required to replicated one DNA double helix into two.
Ofloxacin is broad spectrum antibiotic that is active against both gram positive and negative bacteria

Mechanism of action :-
Oflaxacin acts on DNA gyrase and topoisomerase IV enzymes which like human topoisomerase prevent like the excessive supercoiling of DNA during the replication or transcription by inhibiting their function and drug there by inhibits normal cell division

Pharmokinetics :-
Absorption :- Bioavailability of oflaxacin in the tablet formulation is approximately 98%
Volme of distribution :-
Protein binding :- 32%
metabolism :- Hepatic
Route of admin~~ist~~ Elimination
Oflaxacin is mainly eliminated by renal secretion
The 4-8% of oflaxacin is eliminated by feces

Adverse effect :-
- Convulsion
- Anxious
- Hearing
- depressed
- Severe headache

Drug- Drug interaction :-

1. Aceclofenac

Aceclofenac may increase the neuroexcitatory activity of Ofloxacin.

2 Acemetacin

Acemetacin may increase the neuroexcitatory activity of ofloxacin.

3. Acyclovir

The excretion of Acyclovir can be decreased when combined with Ofloxacin

Food interaction :

Limit caffeine intake

Take with or without food

The absorption is maffected by food

Ondansetron.

Generic name :- Ondansetron

Brand name :- Zofran. Zuplenz

Category :-

Back ground :-

A competitive serotonin type-3 receptor antagonist

It is effective in the treatment of Nausea and vomiting caused by cytotonic chemotherapy drugs including cisplatin

has reported anxiolytic and neuroleptic neuron

Indication :-

In adults patient -

Orally administered ondansetron tablets and the Orally disintegrating tablets are indicated for the prevention of nausea and vomiting associa -ted with emetogenic cancer themotherapy.

In Pediatric Patient -

Ondansetron was effective and well -tolerated when given -to children 4-12 yrs of age for the treatment of post - Chemotherapy induced

Nausea and vomiting

In geriatric patients -

efficacy and tolerance of ondansetron were a similar to that observed in young adults for treatment of post-chemotherapy.

clinical experience in the use of ondansetron in the prevention and treatment of postoperative nausea and vomiting is limited & is not indicated for use of geriatric patient

Pharmodynamic :

Ondansetron is highly specific and selective serotonin 5-HT receptor antagonist

with low affinity for dopamine receptor.

located on the nerve terminal of the vegus.

Mechanism of action :

Ondansetron is a selective antagonist of the serotonin receptor subtype 5-HT3.

Cytotoxic chemotherapy and radiotherapy are associated with the release of serotonin from enterochromaffin cells of the small intestine ondansetron may block the initiation of this reflex. activation of vagal afferents may cause

Central release of Serotonin from the Chemorece -ptor trigger Zone of the rel. area postrema.

Pharmokinetics :

Absorption :

Ondansetron is absorbed from gastrointestinal tract and undergoes some limited first pass meta -bolism.

Volume of distribution :

Volume of distribution of ondansetron has been recorded as approximately 160 L.

Metabolism :

In vitro metabolism has been shown that onden setron is substrate human hepatic cytochrome p450 enzyme including CYP1A2 CYP3A4, CYP2D6.

Route of Edimination :

Orally or IV administration, ondansetron is extensively metabolised & excreted in urine and feces.

Adverse effects : Heart rhyth
dizziness
Blurred vision
Anxiety

Drug - Drug interaction :

1. Benzodiazepine :

The risk or severity of adverse effects can increased when ondansetron is combined with 1,2 Benzodiazepine

2. Acebutol.

The metabolism of ondansetron can be decreased when combined with acebutol

3. Acetazolamide.

The risk of severity of adverse effects can increased when ondansetron is combined with acetazolamide

Food interactions :-

Take with or without food

The absorption is maffected by food

Oxamniquine

Generic name ÷ Oxamniquine

Brand name ÷

Category ÷

Background ÷

An anthelmintic with Schistosomicidal activity against Schistosoma mansoni

Oxamniquine causes warms to shift from the mesenteric veins to the liver where the female worms are retained. female worms return to the mesentary.

Indication ÷

for treatment of schistomicidal caused by Schistosoma mansoni

Pharmodynamics ÷

Oxamniquine is a anthelmintic with Schistosomicidal activity against Schistoma mansoni but not Other Schistomia

Oxamniquine causes worms to shift from mesenteric veins to the liver whenfemale worm turns to mesentery but can no longer egg release

Mechanism of action :-

Oxamniquine may associate with an irreversible inhibition of nucleic acid metabolism of the Parasites.

Schistosome Sulfotransferase enzyme converts oxamniquine into a ester.

Subsequently the ester spontaneously dissociate resulting electrophilic reactant is capable of alkylation of schistosome DNA

Pharmokinetics :-

Absorption :- Well absorbed orally

metabolism - probably hepatic

Elimination - urine, feces

Adverse effects :-

- Headache
- dizziness
- Drowsiness
- vomiting
- Abdominal pain
- decreased appetite

~~Advt~~

Drug - Drug interaction :-

1. Chlorzoxazone

The metabolism of Chlorzoxazone can be decreased when Combined with Oxamniquine

2. Clevidipine

The metabolism of Clevidipine can be decre -ased when combined with Oxamniquine

3. Almotriptan.

The metabolism of Almotriptan can be decreased when combined with oxamniquine.

Oxytetracycline

Oxytetracycline
Brand name - Terramycin.
Generic name - Oxytetracycline
Background :-
Oxytetracycline is a tetracycline antibiotic used to treat a wide variety of bacterial infection
Indication :- Oxytetracycline is indicated for infection Caused by variety of gram positive and negative micro-Organism includes mycoplasma pneumoniae Pasteurella pestis, Escherichia coli, Heamophilus influ-enae, and diplococcus pneumoniae.
Pharmodynamic :-
Oxytetracycline is known a broad spectrum antibiotic due to its activity against such a wide range of the injection it was the second of tetracycline to discov-ered, Oxytetracycline like other tetracycline is used to treat many infection Common and rare
Mechanism of action :-
Oxytetracycline inhibits cell growth by inhibiting translation. it binds to the 30s ribosomal Subunit and prevent the amino acbyl tRNA from binding to Site of ribosome. this binding is reversible in nature Oxytetracycline is lipophilic and easily pass

the Cell membrane, Passively diffuse through porin channels in the bacterial membrane

Tonicity.

Adverse effects may includes stomach or bowel upset and rarely allergic reactions, very rarely headache and vision problems may be sign of dangerous intracranial hypertension

Drug-Drug interaction

1. Acamprosate

The excretion of acamprosate can be decreased when Combined with oxytetracycline

2. Acyclovir.

The excretion of Acyclovir can be decreased when it Is Combined with oxytetracycline

OMEPRAZOLE

Genicname :- Omeprazole.

Brand name :- Losec, Omeclamox, Omesec

Category :- Proton pump inhibitor

Background :-

Originally approved by FDA in 1989.
Omeprazole is proton pump inhibitor used to treat gastric acid related diseases.
⇒ This disorder may include gastroesophageal reflux disease and other diseases like peptic ulcers.
⇒ Omeprazole is generally effective and well tolerated promoting its popular use in children and adults.

Indication :-

Omeprazole according to FDA label is a proton pump inhibitor [PPI] used for following purpose

1. Treatment of active duodenal ulcer in adult
2. Eradication of Helicobacter Pylori
3. Treatment of active benign gastric ulcer in adults.
4. pathologic hypersecretory conditions in adults.
5. Treatment of symptomatic gastroesophageal reflux disease [GERD] in patient 1 year of age and older.
6. Treatment of erosive esophagitis

Pharmacodynamic :-

Effects on gastric acid secretion :-

This drug decreases gastric acid secretion after oral administration The inhibitory effect of omprazole on acid secretion increases with repeated once-daily dosing, reaching a platae after the four days.

Effect on serum gastrin :-

Serum levels increased during the 1-2 weeks of daily admini-stration of therapeutic dose of omeprazole

The increased CgA levels may leads to positive result in diagnostic studies for neuroendocrine tumors.

Other effects :-

Systemic effect of omeprazole in the central nervous system cardiovascular and respiratory system have not found to date.

Omeprazole given in oral doses of 30 or 40mg for 2-4 week

MECHANISM OF ACTION :-

⇒ Hydrochloric acid secretion into gastric lumen is a process regulated mainly H+ / K+ ATpase of the. Proton pump expressed in high quantities by parietal cells of the stomach

ATpase enzyme on cell membrane that facilitates hydrogen and K+ exchange through the cell.

Result in extrusion of potassium and formation of the HCl [gastric acid]

Pharmakokinetics :-

Omeprazole delayed release capsules contain enteric coated granule formation of omeprazole

Absolute bioavailability is approximately 30-40 at doses of 20-40mg.

The bioavailability of omeprazole increases slightly upon repeated administration of omeprazole delayed release capsules.

Volume of dishibution :

Approximately 0.3 L/kg, corresponding to the volume of extracellular water

Protein binding :-

→ Approximately 94.3 / 95% bound to human plasma protein

Metabolism :- Omeprazole is heavily metabolised in liver by cytochrome p450 (CYP) enzyme system main part of its metabolism depends on polymorphorphically.

Route of elimination :-

After a single dose oral dose of a buffered solution of the omeprazole, negligible amount of unchanged drug were excreted in urine

Adverse effects :-

In case of overdose include confusion

Browsiness

Blurred vision.

Tachycardia

Nausea

Flushing

Headache

Dry mouth.

1. Warfarin

→ Enhance the anticoagulant effect of warfarin, as a result of CYP2C19 enzyme inhibition

2. Albendazole

→ metabolism is decreased

Department:		PHARM D							
Course Outcome Attainment - Internal Assessments									
Name of the Faculty:		BE EVANGILEEN		Academic Year:		2020-21			
Branch & Section:		PHARM D		Exam:		MID - I			
Course/Sub:		PT-I		Year/Semister:		II			
		CO1	C01	CO1	C01	CO1	C01	C02	C02
Sl.No	Roll Number	Question No.							
		Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8
Maximum Marks		5	5	5	5	5	5	5	5
1	19GN1T0001	5	4	4		5	5	4	
2	19GN1T0002	4	5	5	5	5		4	
3	19GN1T0003	5	4	5	5	5		4	
4	19GN1T0004		4	5	4		4	5	4
5	19GN1T0005	4		5	4	5	3	5	
6	19GN1T0006	5	5	4	4		4	5	
7	19GN1T0007	5	4	4		5	5		4
8	19GN1T0008	5	4	4		5	4		5
9	19GN1T0009	4	5	4		5	5		4
10	19GN1T0010	5	4		5	4	4		4
11	19GN1T0011	5	4	5	4	5		5	
12	19GN1T0012	4	5		5		4	5	5
13	19GN1T0013	5	5	5	4		5		3
14	19GN1T0014		4	5	5	4		5	5
15	19GN1T0015	5	4	5	5	4	4		
16	19GN1T0016	5	4	4	5		4		5
17	19GN1T0017		5	4	4	5		5	5
18	19GN1T0018	4		5	5		4	5	4
19	19GN1T0019	4	5	4		5	4		5
20	19GN1T0020		5	4		4	4	5	5
21	19GN1T0021	5	4	5			5	4	5
22	19GN1T0022	5	4	4		5		4	5
23	19GN1T0023	5		5	4		5	4	5
24	19GN1T0024	4		4	5		5	5	4
25	19GN1T0025	4			5	4	5	4	5
26	19GN1T0026		5	3	5		4	5	5
27	19GN1T0027	5	5	4			5	4	4
28	19GN1T0028	5		5	4	4	5	4	
29	19GN1T0029		5	4	4	5		5	4
30	19GN1T0030	5		5		4	5	4	4
No. of students attempted		24	23	27	20	19	23	22	22
Max Marks Question wise		5	5	5	5	5	5	5	5
Target 50%		2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5
No. of Students above 50%		24	23	27	20	19	23	22	22
% of Students>50%		100.0	100	100	100.0	100.0	100	100	100.0
Attainment Level		3	3	3	3	3	3	3	3
Attainment table									
70-80%	1								
80-90%	2								
90-100%	3								

AVANTHI INSTITUTE OF PHARMACEUTICAL SCIENCES ABDULLAPURMET

PRINCIPAL
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R.R. Dist. Telangana.

Department:		PHARM D							
Course Outcome Attainment - Internal Assessments									
Name of the Faculty:		BE EVANGILEEN		Academic Year:		2020-21			
Branch & Section:		PHARM D		Exam:		MID - II			
Course/Sub:		PT-I		Year/Semister:		II			
		CO2	CO2	CO2	CO2	CO3	CO3	CO3	CO3
Sl.No	Roll Number	Question No.							
		Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8
Maximum Marks		5	5	5	5	5	5	5	5
1	19GN1T0001	5		4	5	4		5	5
2	19GN1T0002		4	5	4	5		4	5
3	19GN1T0003		4	5	4	5	4	5	
4	19GN1T0004		4		4	5	5	5	4
5	19GN1T0005		5	5	5	5	4		3
6	19GN1T0006	5	3		5	5		4	5
7	19GN1T0007	4		4	5	5		4	5
8	19GN1T0008	4	5	5	4		5	5	
9	19GN1T0009	5	4	5	5	5	4		
10	19GN1T0010	4	5		5	3	5	5	
11	19GN1T0011			4	5	5	4	5	4
12	19GN1T0012			5	4	5	5	4	4
13	19GN1T0013	4	5	4	5		5		4
14	19GN1T0014	5	4	5	5	5	4		
15	19GN1T0015	5		4	5	5	4		4
16	19GN1T0016	4		4	5	5		4	5
17	19GN1T0017		5	4	5	4	4	5	
18	19GN1T0018	5		5	5	4	4		4
19	19GN1T0019		4	5		5	4	4	5
20	19GN1T0020		5	5		4	4	4	5
21	19GN1T0021		4	5	4	5	5	4	
22	19GN1T0022	5	5	4	5	4		4	
23	19GN1T0023	4	5	5	4	4	5		
24	19GN1T0024	5	5	4		5	4	5	4
25	19GN1T0025		4		5	4	5	4	
26	19GN1T0026		4	5	5	4	4	5	
27	19GN1T0027		5	4	4		5	5	4
28	19GN1T0028			4	4	5	5	5	4
29	19GN1T0029	5		4	5	5	5	3	5
30	19GN1T0030		5	4	5		5	5	4
No. of students attempted		24	23	27	20	19	23	22	22
Max Marks Question wise		5	5	5	5	5	5	5	5
Target 50%		2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5
No. of Students above 50%		24	23	27	20	19	23	22	22
% of Students>50%		100.0	100	100	100.0	100.0	100	100	100.0
Attainment Level		3	3	3	3	3	3	3	3

Attainment table	
70-80%	1
80-90%	2
90-100%	3

PRINCIPAL
Avanthi Institute of Pharmaceutical Sciences
Gunthapally (V), Hayath Nagar (M)
Ranga Reddy Dist.

AVANTHI INSTITUTE OF PHARMACEUTICAL SCIENCES
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Gunthapally (V), Abdullapurmet (M), R.R. Dist., Near Ramoji Filmcity, Hyderabad - 501 512.

Department:		PHARM D							
Course Outcome Attainment - Internal Assessments									
Name of the Faculty:		BE EVANGILEEN		Academic Year:		2020-21			
Branch & Section:		PHARM D		Exam:		MID - III			
Course/Sub:		PT-I		Year/Semister:		II			
		CO1	CO1	CO1	CO1	CO1	CO1	CO2	CO2
SLNo	Roll Number	Question No.							
		Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8
Maximum Marks		5	5	5	5	5	5	5	5
1	19GN1T0001	5		4	5	4		5	5
2	19GN1T0002		4	5	4	5		4	5
3	19GN1T0003		4	5	4	5	4	5	
4	19GN1T0004		4		4	5	5	5	4
5	19GN1T0005		5	5	5	5	4		3
6	19GN1T0006	5	3		5	5		4	5
7	19GN1T0007	4		4	5	5		4	5
8	19GN1T0008	4	5	5	4		5	5	
9	19GN1T0009	5	4	5	5	5	4		
10	19GN1T0010	4	5		5	3	5	5	
11	19GN1T0011			4	5	5	4	5	4
12	19GN1T0012			5	4	5	5	4	4
13	19GN1T0013	4	5	4	5		5		4
14	19GN1T0014	5	4	5	5	5	4		
15	19GN1T0015	5		4	5	5	4		4
16	19GN1T0016	4		4	5	5		4	5
17	19GN1T0017		5	4	5	4	4	5	
18	19GN1T0018	5		5	5	4	4		4
19	19GN1T0019		4	5		5	4	4	5
20	19GN1T0020		5	5		4	4	4	5
21	19GN1T0021		4	5	4	5	5	4	
22	19GN1T0022	5	5	4	5	4		4	
23	19GN1T0023	4	5	5	4	4	5		
24	19GN1T0024		5	4		5	4	5	4
25	19GN1T0025	5	4		5	4	5	4	
26	19GN1T0026		4	5	5	4	4	5	
27	19GN1T0027		5	4	4		5	5	4
28	19GN1T0028			4	4	5	5	5	4
29	19GN1T0029			4	5	5	5	3	5
30	19GN1T0030		5	4	5		5	5	4
No. of students attempted		24	23	27	20	19	23	22	22
Max Marks Question wise		5	5	5	5	5	5	5	5
Target 50%		2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5
No. of Students above 50%		24	23	27	20	19	23	22	22
% of Students>50%		100.0	100	100	100.0	100.0	100	100	100.0
Attainment Level		3	3	3	3	3	3	3	3

Attainment table	
70-80%	1
80-90%	2
90-100%	3

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Ranga Reddy Dist.

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Department:	PHARM D		
Course Outcome Attainment External Examination			
Name of the Faculty:	BE EVANGILEEN	Academic Year:	2020-21
Branch & Section:	PHARM D	Exam:	EXTERNAL
Course:	PT-I	Year/Semister:	II

S.NO.	HALLTICKET NO	TOTAL(Max. Score Marks)				
1	19GN1T0001	47				
2	19GN1T0002	46				
3	19GN1T0003	46				
4	19GN1T0004	46				
5	19GN1T0005	43				
6	19GN1T0006	39				
7	19GN1T0007	45				
8	19GN1T0008	53				
9	19GN1T0009	52				
10	19GN1T0010	53				
11	19GN1T0011	53				
12	19GN1T0012	35				
13	19GN1T0013	53				
14	19GN1T0014	53				
15	19GN1T0015	33				
16	19GN1T0016	61				
17	19GN1T0017	48				
18	19GN1T0018	52				
19	19GN1T0019	34				
20	19GN1T0020	56				
21	19GN1T0021	35				
22	19GN1T0022	42				
23	19GN1T0023	53				
24	19GN1T0024	35				
25	19GN1T0025	47				
26	19GN1T0026	37				
27	19GN1T0027	44				
28	19GN1T0028	46				
29	19GN1T0029	36				
30	19GN1T0030	43				
No. of students who attempted the subject		30				
Max. Marks		70				
No. of students secured > 26 marks		30				
Percentage of students secured > 26 marks		100.0				
Overall External Attainment level		3				

Attainment table	
70-80%	1
80-90%	2
90-100%	3

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AVANTHI INSTITUTE OF PHARMACEUTICAL SCIENCES * ABDULLAPURMET *

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Gunthapally (V), Abdullapurmet (M), R.R. Dist., Near Ramoji Filmcity, Hyderabad - 501 512.

Department:	PHARM D		
Overall Course Outcome Attainment			
Name of the Faculty:	BE EVANGILEEN	Academic Year:	2020-21
Branch & Section:	PHARM D	Exam:	
Course:	PT-I	Semister:	II

Course Outcomes	1st	2nd	3rd	Internal	University	Overall Attainment
Course outcome - 1	3	-	-	3	3	3
Course outcome - 2	3	3	-	3	3	3
Course outcome - 3	-	3	3	3	3	3
Course outcome - 4	-	-	3	3	3	3
Average				3	3	3

OVERALL ATTAINMENT OF THE SUBJECT = 0.25*INT + 0.75*EXT

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AVANTHI INSTITUTE OF PHARMACEUTICAL SCIENCES * ABDULLAPURMET *

COURSE OUTCOMES

CO1	In continuation with the previous year, this subject would have continued describing about the different drugs used for treatment of diseases.
CO2	The students would have learnt about drugs used to cancer, inflammation, respiratory system, GIT, immune system and hormones.
CO3	They would have understood the principles of animal toxicology and bioassay procedures.
CO4	They would have learnt in depth knowledge on cell, macromolecules, cell signaling, DNA replication and cell cycle.

CO-PO Mapping

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PSO1	PSO2	PSO3
CO1	2	2	3	2	3	2	3	3	3	3	3	2	2	2
CO2	3	3	2	3	3	2	2	2	3	2	3	3	3	3
CO3	3	3	3	3	2	2	2	3	3	3	3	2	3	2
CO4	2	2	2	2	2	3	3	2	2	2	3	3	2	3
CO avg(M)	2.5	2.5	2.5	2.5	2.5	2.25	2.5	2.5	2.75	2.5	2.5	2.5	2.5	2.5
Attainment Level*	2.5	2.5	2.5	2.5	2.5	2.25	2.5	2.5	2.75	2.5	3	2.5	2.5	2.5

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AVANTHI GROUP INSTITUTIONS

FACULTY MONTHLY PERFORMANCE REPORT

Name of the Faculty : G. Swapna Month : Feb '2021

Department: Pharmaceutical chemistry

College: Avanthi Institute of pharmaceutical sciences

S.No	Subject Name	Year/ Semister	Classes Held in this month	Syllabus Details			No. of Classes required to complete the Syllabus	No. of Tests Conducted in this month	No. of Student Phone calls made	No. of parents visited in this month
				Pervious month Syllabus/ Units completed	Syllabus / Units completed in this month	Syllabus / Units completed from the beginning of the semister to till this month				
1	Pharmaceutical Organic chemistry-II	II/I	8	4.5	0.5 Unit	5 units	-	-	-	-
2										
3										
4	Medicinal chemistry - II	III/I	9	4.0	1 unit	5 units	-	-	-	-
5										
6										

Class Incharge Details:

Class :

Strength :

No. of irregular Students:

Action Taken :

Last Semister Subjects taught and results

S No	Name of the subject	Pass %
1		
2		
3		
4		

Sudents Attendence Registers Checked by Principal Yes / No :

G Swapna

Faculty HOD Principal Director

PRINCIPAL
Avanthi's Institute of Pharmaceutical Sciences
Gunthapally (V), Hayath Nagar (M),
Ranga Reddy Dist.

AVANTHI GROUP INSTITUTIONS

FACULTY MONTHLY PERFORMANCE REPORT

Name of the Faculty : MD. Abdul Azeem Month : March - 2024

Department: Pharm D

College: Avanthi Institute of Pharmaceutical Sciences

S.No	Subject Name	Year/ Semister	Classes Held in this month	Syllabus Details			No. of Classes required to complete the Syllabus	No. of Tests Conducted in this month	No. of Student Phone calls made	No. of parents visited in this month
				Pervious month Syllabus/ Units completed	Syllabus / Units completed in this month	Syllabus / Units completed from the beginning of the semister to till this month				
1	~~Micro biology~~ Pharmaceutical Bio-chemistry	I	15	04	01	05	91	-	-	-
2										
3										
4	Clinical Pharmacy	IV	12	03	01	04	988	-	-	-
5										
6										

Class Incharge Details:

Class :

Strength :

No. of irregular Students:

Action Taken :

Last Semister Subjects taught and results

S No	Name of the subject	Pass %
1		
2		
3		
4		

Sudents Attendence Registers Checked by Principal Yes / No :

Faculty

HOD

Principal

Director

- PRINCIPAL
Avanthi's Institute of Pharmaceutical Sciences
Gunthapally (V), Hayath Nagar (M),
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2021

AVANTHI GROUP INSTITUTIONS

FACULTY MONTHLY PERFORMANCE REPORT

Name of the Faculty : G. Swapna Month : June 2020

Department: pharmaceutical chemistry

College: Avanthi Institute of pharmaceutical Sciences

S.No	Subject Name	Year/ Semister	Classes Held in this month	Syllabus Details			No. of Classes required to complete the Syllabus	No. of Tests Conducted in this month	No. of Student Phone calls made	No. of parents visited in this month
				Pervious month Syllabus/ Units completed	Syllabus / Units completed in this month	Syllabus / Units completed from the beginning of the semister to till this month				
1	POC - I	I/I	13	1.5 units	1 unit	2.5 units	28	-	-	-
2										
3										
4	Medicinal chemistry - I	III/I	16	2.5 units	1 unit	3.5 units	16	-	-	-
5										
6										

Class Incharge Details:

Class :

Strength :

No. of irregular Students:

Action Taken :

Last Semister Subjects taught and results

S No	Name of the subject	Pass %
1		
2		
3		
4		

Sudents Attendence Registers Checked by Principal Yes / No :

G Swapna

Faculty HOD Principal Director

AVANTHI INSTITUTE OF PHARMACEUTICAL SCIENCES * ABDULLAPURMET *

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DATE: 23-06-2021

EXAMINATION BRANCH
NOTICE
TIME-TABLE
PHARM D V-YEAR III MID EXAMINATIONS

Time: 1.30PM to 3.30 PM

DATE & DAY	SUBJECT
29-06-2021/TUE	CLINICAL RESEARCH
30-06-2021/WED	PHARMACOEPIDEMIOLOGY& PHARMACOECONOMICS
01-07-2021/THU	CLINICALPHARMACOKINETICS& PHARMACOTHERAPEUTIC DRUG MONITORING

P. Nagaraju
EXAMINATION BRANCH

HOD

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COPY TO: 1) PRINCIPAL
2) ALL HODS
3)ALL STUDENTS
4)OFFICE
5) NOTICE BOARDS

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AVANTHI INSTITUTE OF PHARMACEUTICAL SCIENCES
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Gunthapally (V), Abdullapurmet (M), R.R. Dist., Near Ramoji Filmcity, Hyderabad - 501 512.

DATE: 17-03-2021

EXAMINATION BRANCH
NOTICE
TIME-TABLE
PHARM D V-YEAR II MID EXAMINATIONS

Time: 1.30PM to 3.30 PM

DATE & DAY	SUBJECT
22-03-2021/MON	CLINICAL RESEARCH
23-03-2021/TUE	PHARMACOEPIDEMIOLOGY& PHARMACOECONOMICS
24-03-2021/WED	CLINICALPHARMACOKINETICS& PHARMACOTHERAPEUTIC DRUG MONITORING

P. Nagaraju
EXAMINATION BRANCH

HOD

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AVANTHI INSTITUTE OF PHARMACEUTICAL SCIENCES * ABDULLAPURMET *

DATE: 08-12-2020

EXAMINATION BRANCH
NOTICE
TIME-TABLE
PHARM D V-YEAR I MID EXAMINATIONS

Time: 1.30PM to 3.30 PM

DATE & DAY	**SUBJECT**
14-12-2020/MON	CLINICAL RESEARCH
15-12-2020/TUE	PHARMACOEPIDEMIOLOGY& PHARMACOECONOMICS
16.12.2020/WED	CLINICALPHARMACOKINETICS& PHARMACOTHERAPEUTIC DRUG MONITORING

P. Nagaraju
EXAMINATION BRANCH

HOD

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AVANTHI INSTITUTE OF PHARMACEUTICAL SCIENCES
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Gunthapally (V), Abdullapurmet (M), R.R. Dist., Near Ramoji Filmcity, Hyderabad - 501 512.

DATE: 23-06-2021

EXAMINATION BRANCH
NOTICE
TIME-TABLE
PHARM D IV-YEAR III MID EXAMINATIONS

Time: 1.30PM to 3.30 PM

DATE & DAY	SUBJECT
29-06-2021/TUE	PHARMACOTHERAPEUTICS-III
30-06-2021/WED	HOSPITAL PHARMACY
01-07-2021/THU	CLINICAL PHARMACY
02-07-2021/FRI	BIOSTATISTICS & RESEARCH METHODOLOGY
03-07-2021/SAT	BIOPHARMACEUTICS & PHARMACO KINETICS
05-07-2021/MON	CLINICAL TOXICOLOGY

P. Nagaraju
EXAMINATION BRANCH **HOD** **PRINCIPAL**

PRINCIPAL
Avanthi's Institute of Pharmaceutical Sciences
Gunthapally (V), Hayath Nagar (M),
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AVANTHI INSTITUTE OF PHARMACEUTICAL SCIENCES * ABDULLAPURMET *

COPY TO: 1) PRINCIPAL
2) ALL HODS
3)ALL STUDENTS
4)OFFICE
5) NOTICE BOARDS

AVANTHI INSTITUTE OF PHARMACEUTICAL SCIENCES
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DATE: 17-03-2021

EXAMINATION BRANCH
NOTICE
TIME-TABLE
PHARM D IV-YEAR II MID EXAMINATIONS

Time: 1.30PM to 3.30 PM

DATE & DAY	SUBJECT
22-03-2021/MON	PHARMACOTHERAPEUTICS-III
23-03-2021/TUE	HOSPITAL PHARMACY
24-03-2021/WED	CLINICAL PHARMACY
25-03-2021/THU	BIOSTATISTICS & RESEARCH METHODOLOGY
26-03-2021/FRI	BIOPHARMACEUTICS & PHARMACO KINETICS
27-03-2021/SAT	CLINICAL TOXICOLOGY

P. Nagaraju
EXAMINATION BRANCH

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DATE: 08-12-2020

EXAMINATION BRANCH
NOTICE
TIME-TABLE
PHARM D IV-YEAR I MID EXAMINATIONS

Time: 1.30PM to 3.30 PM

DATE & DAY	SUBJECT
14-12-2020/MON	PHARMACOTHERAPEUTICS-III
15-12-2020/TUE	HOSPITAL PHARMACY
16.12.2020/WED	CLINICAL PHARMACY
17.12.2020/THU	BIOSTATISTICS & RESEARCH METHODOLOGY
18.12.2020/FRI	BIOPHARMACEUTICS & PHARMACO KINETICS
19.12.2020/SAT	CLINICAL TOXICOLOGY

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DATE: 23-06-2021

EXAMINATION BRANCH

NOTICE

TIME-TABLE

PHARM D III-YEAR III MID EXAMINATIONS

Time: 1.30PM to 3.30 PM

DATE & DAY	SUBJECT
29-06-2021/TUE	PHARMACOLOGY-II
30-06-2021/WED	PHARMACEUTICAL ANALYSIS
01-07-2021/THU	PHARMACOTHERAPEUTICS-II
02-07-2021/FRI	PHARMACEUTICAL JURISPRUDENCE
03-07-2021/SAT	MEDICINAL CHEMISTRY
05-07-2021/MON	PHARMACEUTICAL FORMULATIONS

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DATE: 17-03-2021

EXAMINATION BRANCH

NOTICE

TIME-TABLE

PHARM D III-YEAR II MID EXAMINATIONS

Time: 1.30PM to 3.30 PM

DATE & DAY	SUBJECT
22-03-2021/MON	PHARMACOLOGY-II
23-03-2021/TUE	PHARMACEUTICAL ANALYSIS
24-03-2021/WED	PHARMACOTHERAPEUTICS-II
25-03-2021/THU	PHARMACEUTICAL JURISPRUDENCE
26-03-2021/FRI	MEDICINAL CHEMISTRY
27-03-2021/SAT	PHARMACEUTICAL FORMULATIONS

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DATE: 08-12-2020

EXAMINATION BRANCH

NOTICE

TIME-TABLE

PHARM D III-YEAR I MID EXAMINATIONS

Time: 1.30PM to 3.30 PM

DATE & DAY	SUBJECT
14-12-2020/MON	PHARMACOLOGY-II
15-12-2020/TUE	PHARMACEUTICAL ANALYSIS
16.12.2020/WED	PHARMACOTHERAPEUTICS-II
17.12.2020/THU	PHARMACEUTICAL JURISPRUDENCE
18.12.2020/FRI	MEDICINAL CHEMISTRY
19.12.2020/SAT	PHARMACEUTICAL FORMULATIONS

P. Nagaraju

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AVANTHI INSTITUTE OF PHARMACEUTICAL SCIENCES * ABDULLAPURMET *

DATE: 23-06-2021

EXAMINATION BRANCH

NOTICE

TIME-TABLE

PHARM D II-YEAR III MID EXAMINATIONS

Time: 1.30PM to 3.30 PM

DATE & DAY	SUBJECT
29-06-2021/TUE	PATHOPHYSIOLOGY
30-06-2021/WED	PHARMACEUTICAL MICROBIOLOGY
01-07-2021/THU	PHARMACOGNOSY & PHYTOPHARMACEUTICALS
02-07-2021/FRI	PHARMACOLOGY-1
03-07-2021/SAT	COMMUNITY PHARMACY
05-07-2021/MON	PHARMACOTHERAPEUTICS-1

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DATE: 17-03-2021

EXAMINATION BRANCH

NOTICE

TIME-TABLE

PHARM D II-YEAR II MID EXAMINATIONS

Time: 1.30PM to 3.30 PM

DATE & DAY	SUBJECT
22-03-2021/MON	PATHOPHYSIOLOGY
23-03-2021/TUE	PHARMACEUTICAL MICROBIOLOGY
24-03-2021/WED	PHARMACOGNOSY & PHYTOPHARMACEUTICALS
25-03-2021/THU	PHARMACOLOGY-1
26-03-2021/FRI	COMMUNITY PHARMACY
27-03-2021/SAT	PHARMACOTHERAPEUTICS-1

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DATE: 08-12-2020

EXAMINATION BRANCH

NOTICE

TIME-TABLE

PHARM D II-YEAR I MID EXAMINATIONS

Time: 1.30PM to 3.30 PM

DATE & DAY	SUBJECT
14-12-2020/MON	PATHOPHYSIOLOGY
15-12-2020/TUE	PHARMACEUTICAL MICROBIOLOGY
16.12.2020/WED	PHARMACOGNOSY & PHYTOPHARMACEUTICALS
17.12.2020/THU	PHARMACOLOGY-1
18.12.2020/FRI	COMMUNITY PHARMACY
19.12.2020/SAT	PHARMACOTHERAPEUTICS-1

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DATE: 01-09-2021

EXAMINATION BRANCH

NOTICE

TIME-TABLE

PHARM D I-YEAR III MID EXAMINATIONS

Time: 1.30PM to 3.30 PM

DATE & DAY	SUBJECT
06-09-2021	HUMAN ANATOMY & PHYSIOLOGY
07-09-2021	PHARMACEUTICS
08-09-2021	MEDICINAL BIOCHEMISTRY
09-09-2021	PHARMACEUTICAL INORGANIC CHEMISTRY
11-09-2021	PHARMACEUTICAL ORGANIC CHEMISTRY
13-09-2021	REMEDIAL MATHEMATICS

D. Nagaraju

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DATE: 02-06-2021

EXAMINATION BRANCH

NOTICE

TIME-TABLE

PHARM D I-YEAR II MID EXAMINATIONS

Time: 1.30 PM to 3.30 PM

DATE & DAY	SUBJECT
07-06-2021/MON	HUMAN ANATOMY & PHYSIOLOGY
08-06-2021/TUE	PHARMACEUTICS
09-06-2021/WED	MEDICINAL BIOCHEMISTRY
10-06-2021/THU	PHARMACEUTICAL INORGANIC CHEMISTRY
11-06-2021/FRI	PHARMACEUTICAL ORGANIC CHEMISTRY
12-06-2021/SAT	REMEDIAL MATHEMATICS

P. Nagaraju

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DATE: 03-03-2021

EXAMINATION BRANCH

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TIME-TABLE

PHARM D I-YEAR I MID EXAMINATIONS

Time: 1.30PM to 3.30 PM

DATE & DAY	SUBJECT
08-03-2021/MON	HUMAN ANATOMY & PHYSIOLOGY
09-03-2021/TUE	PHARMACEUTICS
10-03-2021/WED	MEDICINAL BIOCHEMISTRY
13-03-2021/SAT	PHARMACEUTICAL INORGANIC CHEMISTRY
15-03-2021/MON	PHARMACEUTICAL ORGANIC CHEMISTRY
16-03-2021/TUE	REMEDIAL MATHEMATICS

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EXAMINATION BRANCH

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KUKATPALLY-HYDERABAD-5000 85

EXAMINATION BRANCH

II YEAR B.PHARM - I SEMESTER –R17, R16, R15 , R13, R09 REGULATIONS-REGULAR/ SUPPLEMENTARY EXAMINATIONS MARCH-2021

TIMETABLE

TIME :FN 9:45 AM TO 12:45 PM

DATE& DAY	R17	R16	R15	R13	R09
08-03-2021 MONDAY	Pharmaceutical Organic Chemistry – II	Pharmaceutical Organic Chemistry – III	Pharmaceutical Organic Chemistry – II	Pharmaceutical Organic Chemistry-II	Pharmaceutical Organic Chemistry-II
10-03-2021 WEDNESDAY	Physical Pharmaceutics-I	Pharmacognosy I	Statistical Methods & Computer Applications	Statistical Methods & Computer Applications	Statistical Methods & Computer Applications
13-03-2021 SATURDAY	Pharmaceutical Microbiology	HospitaL and Community Pharmacy	Anatomy, Physiology &Pathophysiology	Anatomy Physiology &Patho physiology	Physical Pharmacy – I Dispensing and Hospital Pharmacy
16-03-2021 TUESDAY	Pharmaceutical Engineering	Pharmaceutical Unit Operations – I	Pharmaceutical Unit Operations – I	Pharmaceutical Unit Operations – I	Pharmaceutical Unit Operations – I
18-03-2021 THURSDAY	---	Pharmaceutical Analysis-I	Physical Pharmacy – I	Physical Pharmacy – I	Anatomy Physiology & Path physiology Health Education and Path physiology

DATE: 15-02-2021

Sd/-
CONTROLLER OF EXAMINATIONS

NOTE:
(i).ANY OMISSIONS OR CLASHES IN THIS TIME TABLE MAY PLEASE BE INFORMED TO THE CONTROLLER OF EXAMINATIONS IMMEDIATELY
(ii).EVEN IF GOVERNMENT DECLARES HOLIDAY ON ANY OF THE ABOVE DATES.THE EXAMINATIONS SHALL BE CONDUCTED AS USUAL

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KUKATPALLY - HYDERABAD – 500 085

EXAMINATION BRANCH

IV YEAR B.PHARM-II SEMESTER –R16, R15, R13, R09 REGULATION-REGULAR/SUPPLEMENTARY EXAMINATIONS SEPTEMBER-2020

REVISED T I M E T A B L E

TIME→ FN: 10.30 AM TO 12.30 PM

course	R16	R15	R13	R09
16-09-2020 WEDNESDAY	Novel Drug Delivery Systems	Novel Drug Delivery Systems and Regulatory Affairs	Novel Drug Delivery Systems and Regulatory Affairs	Pharmacognosy III
18-09-2020 FRIDAY	Clinical Pharmacy	Pharmaceutical Biotechnology	Pharmaceutical Biotechnology	Novel Drug Delivery Systems and Regulatory
20-09-2020 SUNDAY	Pharmaceutical Biotechnology	Pharmaceutical Analysis II	Pharmaceutical Analysis II	Clinical Pharmacy and Therapeutics
25-09-2020 FRIDAY	Nano Technology Pharmacoepidemiology, Pharmacoeconomics and pharmacovigilance Medicinal Plant Biotechnology	Clinical Pharmacy Practice	Clinical Pharmacy Practice	Pharmaceutical Biotechnology
27-09-2020 SUNDAY	Pharmacognosy – III	Human Values and Professional Ethics	Human Values and Professional Ethics	Medicinal Chemistry III

DATE:02-09-2020

Sd/-

CONTROLLER OF EXAMINATIONS

NOTE:

I). ANY OMISSIONS OR CLASHES IN THIS TIME TABLE MAY PLEASE BE INFORMED TO THE CONTROLLER OF EXAMINATIONS IMMEDIATELY

II). EVEN IF GOVERNMENT DECLARES HOLIDAY ON ANY OF THE ABOVE DATES.THE EXAMINATIONS SHALL BE CONDUCTED AS USUAL

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KUKATPALLY-HYDERABAD-5000 85

EXAMINATION BRANCH

III YEAR B.PHARM - I SEMESTER–R17, R16, R15, R13, R09 REGULATIONS- SUPPLEMENTARY EXAMINATIONS OCTOBER-2020

TIME: AN: 2:30 PM TO 4:30 PM

DATE & DAY	R17	R16	R15	R13	R09
13-10-2020 TUESDAY	Medicinal Chemistry II	Pharmaceutical Microbiology	Pharmaceutical Microbiology	Pharmaceutical Microbiology	Pharmaceutical Microbiology
15-10-2020 THURSDAY	Industrial Pharmacy - I	Pharmaceutical Technology -I	Pharmacognosy – II	Pharmacognosy–II	Pharmaceutical Biochemistry
20-10-2020 TUESDAY	Pharmacology II	Pharmacology – I	Pharmacology – I	Pharmacology-I	Pharmacology - I
22-10-2020 THURSDAY	Pharmacognosy and Phytochemistry - II	Pharmacognosy -II	Pharmaceutical Technology – I	Pharmaceutical Technology–I	Pharmacognosy - II
28-10-2020 WEDNESDAY	**(Open Elective-I)** Generic Product Development	**(Open Elective-I)** Drug Regulatory Affairs	Pharmaceutical Analysis-I	Pharmaceutical Analysis -I	Pharmaceutical Technology - I
	Green Chemistry	Active Pharmaceutical Ingredient Process Development			
	Cell and Molecular Biology				
	Cosmetic science	Entrepreneurship and Small Business Enterprises			

DATE: 30-09-2020

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(ii).EVEN IF GOVERNMENT DECLARES HOLIDAY ON ANY OF THE ABOVE DATES THE EXAMINATIONS SHALL BE CONDUCTED AS USUAL

DATE: 18.03.2021

B. PHARMACY

PROJECT SHEDULE

For the academic year **2020-2021** all the **IV B. PHARM II SEMESTER** are here by informed that the students should undergo the course project as per the JNTUH R17 REGULATIONS.

S.NO:	REVIEW & ASSESSMENT	TOPIC	TENTATIVE SCHEDULE
1	PROJECT INITIALIZATION	FINALIZATION OF TITLE & PLAN OF WORK	29.03.2021 to 2.04.2021
2	REVIEW-1	REVIEW OF LITERATURE	05.05.2021 to 15.05.2021
3	REVIEW-2	METHODOLOGY & EXPECTED RESULTS	10.06.2021 to 17.06.2021
4	REVIEW-3	RESULTS & DISCUSSION, CONCLUSION	12.07.2021 to 22.07.2021

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Guidelines to students:

1. UG project work shall be carried out during IV Year II Semester.

2. Project will be evaluated for 100 marks. Student has to submit project work report at the end of semester.

3. *Project shall be conducted in* 3 Reviews

4. Project shall be completed before the commencement of SEE Theory examinations.

5. For Project the departmental committee consisting of Head of the Department, project supervisor and a senior faculty member shall evaluate the project work.

6. The student is deemed to have failed, if he/she

(i) Does not submit a report or does not make a presentation of the same before the evaluation committee as per schedule, or

(ii) Secures less than 40% marks in the sum total of the CIE and SEE taken together.

7. A student who has failed may reappear once for the above evaluation, when it is scheduled again; if he fails in such 'one reappearance' evaluation also, he has to reappear for the same in the next subsequent semester, as and when it is scheduled.

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8. For conducting viva-voce of project, University selects an external examiner from the list of experts in the relevant branch submitted by the Principal of the College.

9. A student who has failed may reappear once for the above evaluation, when it is scheduled again; if student fails in such 'one reappearance' evaluation also, he has to reappear for the same in the next subsequent semester, as and when it is scheduled.

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Department:		PHARM D							
Course Outcome Attainment - Internal Assessments									
Name of the Faculty:		BE EVANGILEEN		Academic Year:		2020-21			
Branch & Section:		PHARM D		Exam:		MID - I			
Course/Sub:		PT-I		Year/Semister:		II			
		CO1	C01	CO1	C01	CO1	C01	C02	C02
Sl.No	Roll Number	Question No.							
		Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8
Maximum Marks		5	5	5	5	5	5	5	5
1	19GN1T0001	5	4	4		5	5	4	
2	19GN1T0002	4	5	5	5	5		4	
3	19GN1T0003	5	4	5	5	5		4	
4	19GN1T0004		4	5	4		4	5	4
5	19GN1T0005	4		5	4	5	3	5	
6	19GN1T0006	5	5	4	4		4	5	
7	19GN1T0007	5	4	4		5	5		4
8	19GN1T0008	5	4	4		5	4		5
9	19GN1T0009	4	5	4		5	5		4
10	19GN1T0010	5	4		5	4	4		4
11	19GN1T0011	5	4	5	4	5		5	
12	19GN1T0012	4	5		5		4	5	5
13	19GN1T0013	5	5	5	4		5		3
14	19GN1T0014		4	5	5	4		5	5
15	19GN1T0015	5	4	5	5	4	4		
16	19GN1T0016	5	4	4	5		4		5
17	19GN1T0017		5	4	4	5		5	5
18	19GN1T0018	4		5	5		4	5	4
19	19GN1T0019	4	5	4		5	4		5
20	19GN1T0020		5	4		4	4	5	5
21	19GN1T0021	5	4	5			5	4	5
22	19GN1T0022	5	4	4		5		4	5
23	19GN1T0023	5		5	4		5	4	5
24	19GN1T0024	4		4	5		5	5	4
25	19GN1T0025	4			5	4	5	4	5
26	19GN1T0026		5	3	5		4	5	5
27	19GN1T0027	5	5	4			5	4	4
28	19GN1T0028	5		5	4	4	5	4	
29	19GN1T0029		5	4	4	5		5	4
30	19GN1T0030	5		5		4	5	4	4
No. of students attempted		24	23	27	20	19	23	22	22
Max Marks Question wise		5	5	5	5	5	5	5	5
Target 50%		2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5
No. of Students above 50%		24	23	27	20	19	23	22	22
% of Students>50%		100.0	100	100	100.0	100.0	100	100	100.0
Attainment Level		3	3	3	3	3	3	3	3
Attainment table									
70-80%	1								
80-90%	2								
90-100%	3								

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Department:		PHARM D							
Course Outcome Attainment - Internal Assessments									
Name of the Faculty:		BE EVANGILEEN		Academic Year:		2020-21			
Branch & Section:		PHARM D		Exam:		MID - II			
Course/Sub:		PT-I		Year/Semister:		II			
		CO2	CO2	CO2	CO2	CO3	CO3	CO3	CO3
Sl.No	Roll Number	Question No.							
		Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8
Maximum Marks		5	5	5	5	5	5	5	5
1	19GN1T0001	5		4	5	4		5	5
2	19GN1T0002		4	5	4	5		4	5
3	19GN1T0003		4	5	4	5	4	5	
4	19GN1T0004		4		4	5	5	5	4
5	19GN1T0005		5	5	5	5	4		3
6	19GN1T0006	5	3		5	5		4	5
7	19GN1T0007	4		4	5	5		4	5
8	19GN1T0008	4	5	5	4		5	5	
9	19GN1T0009	5	4	5	5	5	4		
10	19GN1T0010	4	5		5	3	5	5	
11	19GN1T0011			4	5	5	4	5	4
12	19GN1T0012			5	4	5	5	4	4
13	19GN1T0013	4	5	4	5		5		4
14	19GN1T0014	5	4	5	5	5	4		
15	19GN1T0015	5		4	5	5	4		4
16	19GN1T0016	4		4	5	5		4	5
17	19GN1T0017		5	4	5	4	4	5	
18	19GN1T0018	5		5	5	4	4		4
19	19GN1T0019		4	5		5	4	4	5
20	19GN1T0020		5	5		4	4	4	5
21	19GN1T0021		4	5	4	5	5	4	
22	19GN1T0022	5	5	4	5	4		4	
23	19GN1T0023	4	5	5	4	4	5		
24	19GN1T0024	5	5	4		5	4	5	4
25	19GN1T0025		4		5	4	5	4	
26	19GN1T0026		4	5	5	4	4	5	
27	19GN1T0027		5	4	4		5	5	4
28	19GN1T0028			4	4	5	5	5	4
29	19GN1T0029	5		4	5	5	5	3	5
30	19GN1T0030		5	4	5		5	5	4
No. of students attempted		24	23	27	20	19	23	22	22
Max Marks Question wise		5	5	5	5	5	5	5	5
Target 50%		2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5
No. of Students above 50%		24	23	27	20	19	23	22	22
% of Students>50%		100.0	100	100	100.0	100.0	100	100	100.0
Attainment Level		3	3	3	3	3	3	3	3

Attainment table	
70-80%	1
80-90%	2
90-100%	3

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Department:		PHARM D							
Course Outcome Attainment - Internal Assessments									
Name of the Faculty:		BE EVANGILEEN		Academic Year:		2020-21			
Branch & Section:		PHARM D		Exam:		MID - III			
Course/Sub:		PT-I		Year/Semister:		II			
		CO1	CO1	CO1	CO1	CO1	CO1	CO2	CO2
SLNo	Roll Number	Question No.							
		Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8
Maximum Marks		5	5	5	5	5	5	5	5
1	19GN1T0001	5		4	5	4		5	5
2	19GN1T0002		4	5	4	5		4	5
3	19GN1T0003		4	5	4	5	4	5	
4	19GN1T0004		4		4	5	5	5	4
5	19GN1T0005		5	5	5	5	4		3
6	19GN1T0006	5	3		5	5		4	5
7	19GN1T0007	4		4	5	5		4	5
8	19GN1T0008	4	5	5	4		5	5	
9	19GN1T0009	5	4	5	5	5	4		
10	19GN1T0010	4	5		5	3	5	5	
11	19GN1T0011			4	5	5	4	5	4
12	19GN1T0012			5	4	5	5	4	4
13	19GN1T0013	4	5	4	5		5		4
14	19GN1T0014	5	4	5	5	5	4		
15	19GN1T0015	5		4	5	5	4		4
16	19GN1T0016	4		4	5	5		4	5
17	19GN1T0017		5	4	5	4	4	5	
18	19GN1T0018	5		5	5	4	4		4
19	19GN1T0019		4	5		5	4	4	5
20	19GN1T0020		5	5		4	4	4	5
21	19GN1T0021		4	5	4	5	5	4	
22	19GN1T0022	5	5	4	5	4		4	
23	19GN1T0023	4	5	5	4	4	5		
24	19GN1T0024		5	4		5	4	5	4
25	19GN1T0025	5	4		5	4	5	4	
26	19GN1T0026		4	5	5	4	4	5	
27	19GN1T0027		5	4	4		5	5	4
28	19GN1T0028			4	4	5	5	5	4
29	19GN1T0029			4	5	5	5	3	5
30	19GN1T0030		5	4	5		5	5	4
No. of students attempted		24	23	27	20	19	23	22	22
Max Marks Question wise		5	5	5	5	5	5	5	5
Target 50%		2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5
No. of Students above 50%		24	23	27	20	19	23	22	22
% of Students>50%		100.0	100	100	100.0	100.0	100	100	100.0
Attainment Level		3	3	3	3	3	3	3	3

Attainment table	
70-80%	1
80-90%	2
90-100%	3

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Department:	PHARM D		
Course Outcome Attainment External Examination			
Name of the Faculty:	BE EVANGILEEN	Academic Year:	2020-21
Branch & Section:	PHARM D	Exam:	EXTERNAL
Course:	PT-I	Year/Semister:	II

S.NO.	HALLTICKET NO	TOTAL(Max. Score Marks)				
1	19GN1T0001	47				
2	19GN1T0002	46				
3	19GN1T0003	46				
4	19GN1T0004	46				
5	19GN1T0005	43				
6	19GN1T0006	39				
7	19GN1T0007	45				
8	19GN1T0008	53				
9	19GN1T0009	52				
10	19GN1T0010	53				
11	19GN1T0011	53				
12	19GN1T0012	35				
13	19GN1T0013	53				
14	19GN1T0014	53				
15	19GN1T0015	33				
16	19GN1T0016	61				
17	19GN1T0017	48				
18	19GN1T0018	52				
19	19GN1T0019	34				
20	19GN1T0020	56				
21	19GN1T0021	35				
22	19GN1T0022	42				
23	19GN1T0023	53				
24	19GN1T0024	35				
25	19GN1T0025	47				
26	19GN1T0026	37				
27	19GN1T0027	44				
28	19GN1T0028	46				
29	19GN1T0029	36				
30	19GN1T0030	43				
No. of students who attempted the subject		30				
Max. Marks		70				
No. of students secured > 26 marks		30				
Percentage of students secured > 26 marks		100.0				
Overall External Attainment level		3				

Attainment table	
70-80%	1
80-90%	2
90-100%	3

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