



PRAVARA INSTITUTE OF MEDICAL SCIENCES (DEEMED TO BE UNIVERSITY)

Loni, Tal. Rahata, Dist. Ahmednagar 413736
NAAC Re-accredited with 'A' Grade

SYLLABUS:PHARMACOLOGY

UG PROGRAMME : IInd year MBBS

(Competency Based Undergraduate Curriculum will be implemented from
MBBS Batch 2024-25)

Course Code : Theory Paper I - MU 201
Theory Paper II - MU 202

Teaching Hours : 11 Months 260 hours

1. GOAL:

To inculcate a rational and scientific basis of therapeutics in a medical graduate

Subject Goals:

At the end of teaching learning in pharmacology, the student should be able to:

1. Know about essential and commonly used drugs and an understanding of the pharmacologic basis of therapeutics.
2. Apply pharmacokinetic and pharmacodynamic concept of drugs to drug selection and dosage regimens.
3. Explain mechanism of action of commonly used drugs.
4. Select and rationally prescribe drugs based on clinical condition and the Pharmacologic properties, efficacy, safety and cost of medicines for common clinical conditions of national importance.
5. Understand generic, branded, over the counter (OTC) and prescription only drugs.
6. Understand pharmacovigilance and identify adverse drug reactions and drug interactions of commonly used drugs.
7. Understand essential medicine concept and explore sources of drug information.
8. Administer drugs through various common routes of administration.
9. Understand and apply concept of evidence-based medicine and rational use of drugs.
10. Communicate well in imparting drug related information to patients.
11. Knows basics of new drug delivery and industry-doctor relationship.
12. Critically analyze drug promotional literature and drug formulations.
13. Understand regulatory and ethical aspects of drug discovery and drug use

2. OBJECTIVES:

a. Knowledge and intellectual skills

At the end of the course, the learner shall be able to:

1. Understand the general principles of drug action and handling of drugs by the body in all the individuals including children, elderly, lactating and pregnant women and those having a renal and/or hepatic disease and genetic variations.
2. Prescribe drugs rationally by:
 - a. Understanding the importance of both the non-drug and drug treatment
 - b. Selection of drugs based on suitability, tolerability, efficacy and cost.
3. Apply pharmacokinetic principles in clinical practice pertaining to the drugs used in commonly encountered conditions, National Health Programmes and emergency medical conditions.
4. Foresee, prevent and manage adverse drug events and drug interactions.
5. Use antimicrobials judiciously for therapy and prophylaxis.
6. Understand and implement the concepts of essential medicines, Pharmacoeconomics and evidence-based medicine for improving the community health care.
7. Describe the clinical presentation and management of common poisoning including bites and stings.
8. Understand the basic concepts of new drug development with emphasis on design and conduct of clinical trials and interpretation of their results.

b. Psychomotor skills

At the end of the course, the learner shall be able to:

1. Write a correct, complete and legible prescription for common ailments including those in the National health Programmes and emergency medical conditions.
2. Calculate the drug dosage using appropriate formulae for an individual patient.
3. Administer the required dose of different drug formulations using appropriate devices and techniques (. e.g. injections, inhalers, transdermal patches etc.).
4. Advice and interpret the therapeutic monitoring reports of important drugs.
5. Identify, analyze and report adverse drug reactions to appropriate authorities.
6. Retrieve drug information from appropriate sources including the electronic resources.
7. Analyze critically drug promotional literature in terms of pharmacological actions of the ingredients, rational/irrational nature

of the preparation, economics of the use and claims by the pharmaceutical companies.

8. Interpret data from in-vitro and in-vivo experiments designed to study the effect of drugs in animals and human beings.

c. Attitude and communication skills

At the end of the course, the learner shall be able to:

1. Communicate with the patient regarding optimal use of drug therapy, devices and storage of medicines.
2. Follow the drug treatment guidelines laid down for common diseases including those covered under the national Health Programmes and emergency medical conditions and be capable of initiating and monitoring the treatment, recording progress and assessing the outcome.
3. Motivate patients with chronic diseases to adhere to the line of management as outlined by the health care provider.
4. Appreciate the relationship between cost of treatment and patient compliance.
5. Exercise caution in prescribing drugs likely to produce dependence and recommend the line of management.
6. Understand the legal and ethical aspects of prescribing drugs.
7. Evaluate the ethics, scientific procedures, social and legal implications involved in the development and introduction of new drugs.

3. DISTRIBUTION OF TEACHING HOURS

Method of Interaction		Teaching Hours	
Lectures			80
Small Group discussions			170
	Practical (27)	81	
	Small Group Discussions 20	20	
	Integrated Teaching	37	
	Tutorials/ Seminar	32	
Self-Directed Learning			10
Total			260

4. Marks distribution for University Annual Examinations

Phase of Course	Theory	Practical	Passing criteria
Phase-II MBBS	Paper 1-100	100	Mandatory to get 40% marks separately in theory and in practicals; and totally 50% for theory plus practical's
Pharmacology-2 papers	Paper 2-100		

5. TOPIC AND COMPETANCIES IN PHARMACOLOGY

SR.NO	SUBJECT	NO. OF TOPICS	COMPETANCIES
1	PHARMACOLOGY	10	92

6. THEORY SYLLABUS

S.NO	TOPIC /SUBTOPIC	COMP. NO.PH	COMPETANCY COVERED
Topic 1: General Pharmacology (GP)			
1.	INTRODUCTION OF PHARMACOLOGY	1.1	Describe the principles of pharmacology, pharmacotherapeutics and define various terms in pharmacology.
		1.3	Describe nomenclature of drugs i.e., generic, branded drugs and scheduled drugs, explaining the utility of the nomenclature, cost effectiveness and use.
2.	ROUTES OF ADMINISTRATION	1.5	Describe various routes of drug administration, their advantages and disadvantages and demonstrate administration of, e.g., SC, IV, IM, SL, rectal, spinal, sublingual, intranasal sprays and inhalers
3.	DRUG ABSORPTION	1.6.1	Describe salient features of absorption
4.	DRUG DISTRIBUTION	1.6.2	Describe salient features of distribution,
5.	DRUG METABOLISM	1.6.3	Describe salient features of metabolism
6.			
7.	DRUG EXCRETION	1.6.4	Describe salient features excretion of drugs with emphasis on various routes of drug administration
8.	DRUG RECEPTOR INTERACTIONS	1.7	Describe various principles of mechanism of action of drugs
9.	DRUG SYNERGISM/ ANTAGONISM	1.9	Select rational drug combinations based on the pharmacokinetics/pharmacodynamic (PK/PD) parameters with emphasis on synergism, antagonism, 'therapeutic efficacy', risk benefit ratio
10.	FACTORS MODIFYING DRUG ACTION	1.10	Describe changes in pharmacology of drugs in geriatric, pediatric and special situations such as Pregnancy, lactation, hepatic and renal disorders and adjust the drug treatment accordingly.
11.	ADRs	1.11	Define Adverse Drug Reactions (ADRs) & their types. Identify the ADRs in the given case scenario and assess causality.
Topic 2: Autonomic & Peripheral Nervous system, Autacoids			
12.	ADRENEGICS/ SYMPHATHOMIMETIC S: I	2.1	Describe types, salient pharmacokinetics, pharmacodynamics, therapeutic uses, adverse drug reactions of adrenergic and antiadrenergic drugs
13.	CHOLINERGICS AND ANTICHOLINERGICS	2.2	Describe types, salient pharmacokinetics, pharmacodynamics, therapeutic uses, adverse drug reactions of cholinergic and anticholinergic drugs and demonstrate OPC poisoning management

14.	ADRENEGICS/ SYMPHATHOMIMETIC S: IL	2.3	Explain the rationale and demonstrate the emergency use of various sympathetic and parasympathetic drug agonists/antagonists (like Noradrenaline/ Adrenaline/Dopamine/Dobutamine, Atropine) in case-based scenarios
15.	SKELETAL MUSCLE RELAXANTS	2.4	Explain salient pharmacokinetics, pharmacodynamics, therapeutic uses, adverse drug reactions of skeletal muscle relaxants
16.	LOCAL ANAESTHETICS	2.5	Explain types, salient pharmacokinetics, pharmacodynamics, therapeutic uses, adverse drug reactions of local anesthetics (LA) & demonstrate various methods of administration of LA
17.	ANTI HISTAMINICS	2.6	Explain types, salient pharmacokinetics, pharmacodynamics, therapeutic uses, adverse drug reactions of anti-histaminics and explain management of common cold & allergic rhinitis.
18.	NSAIDS	2.7	Define pain and enumerate drugs used for pain. Explain salient pharmacokinetics, pharmacodynamics, therapeutic uses, adverse drug reactions of analgesics including NSAIDs (except opioids)
19.	DMARDS AND GOUT	2.8	Devise management plan for a case of gout, arthritis and migraine using appropriate drugs
Topic 3: Central Nervous system			
20.	PREANAESTHETIC AND GENERAL ANESTHETICS	3.1	Describe types, salient pharmacokinetics, pharmacodynamics, therapeutic uses, adverse drug reactions of General anesthetics, and pre-anaesthetic medications
21.	SEDATIVE HYPNOTICS	3.2	Describe types, salient pharmacokinetics, pharmacodynamics, therapeutic uses, adverse drug reactions of different sedative and hypnotic agents and explain pharmacological basis of selection and use of different sedative and hypnotic agents
22.	ANTI EPILEPTICS	3.3	Describe types, salient pharmacokinetics, pharmacodynamics, therapeutic uses, adverse drug reactions of drugs used in epilepsy and devise management plan for a case of uncontrolled seizure
23.	OPIOIDS	3.4	Describe types, salient pharmacokinetics, pharmacodynamics, therapeutic uses, adverse drug reactions of drugs of opioid analgesics and explain the special instructions for use of opioids.
24.	ANTI PSYCHOTICS	3.5	Describe types, salient pharmacokinetics, pharmacodynamics, therapeutic uses, adverse drug reactions of drugs used for depression and psychosis, devise management plan for depressive and psychotic disorders

25.	ANXIETY AND DEPRESSION	3.6	Describe types, salient pharmacokinetics, pharmacodynamics, therapeutic uses, adverse drug reactions of drugs used in anxiety disorders. Discuss about general goals of Pharmacotherapy for the management of above disorders
26.	ANTIPARKINSONIANS	3.7	Explain types, salient pharmacokinetics, pharmacodynamics, therapeutic uses, adverse drug reactions of drugs used for Parkinsonism and other neurodegenerative disorders. Write a prescription to manage a case of drug induced parkinsonism
Topic 4: Cardiovascular system & Blood			
27.	ANAEMIA	4.1	Explain types, salient pharmacokinetics, pharmacodynamics, therapeutic uses, adverse drug reactions of drugs used for different anemias and thrombocytopenia.
28.	ANTICOAGULANTS	4.2	Explain types, salient pharmacokinetics, pharmacodynamics, therapeutic uses, adverse drug reactions of drugs acting on coagulation system (Coagulants/anticoagulants) and devise a plan to monitor therapy and management of adverse effects.
29.	FIBRINOLYTICS AND ANTIFIBRINOLYTIC AGENTS.	4.3	Describe types, salient pharmacokinetics, pharmacodynamics, therapeutic uses, adverse drug reactions of Fibrinolytics and Antifibrinolytic agents.
30.	ANTIPLATELETS	4.4	Explain types, salient pharmacokinetics, pharmacodynamics, therapeutic uses, adverse drug reactions of Antiplatelets agents.
31.	DIURETICS	4.5	Explain types, salient pharmacokinetics, pharmacodynamics, therapeutic uses, adverse drug reactions of Diuretics, antidiuretics- vasopressin and analogues
32.	DRUGS ACTING ON RENIN ANGIOTENSIN SYSTEM	4.6	Explain salient pharmacokinetics, pharmacodynamics, therapeutic uses, adverse drug reactions of drugs modulating renin angiotensin aldosterone system.
33.	ANTIHYPERTENSIVES	4.7	Explain types, salient pharmacokinetics, pharmacodynamics, therapeutic uses, adverse drug reactions of drugs used for the management of hypertension Devise plan for pharmacologic management of hypertension with Diabetes, Pregnancy induced hypertension and hypertensive emergency and urgency
34.	TREATMENT OF AMI	4.8	Describe types, salient pharmacokinetics, pharmacodynamics, therapeutic uses, adverse drug reactions of drugs used for the management of ischemic heart disease (stable, unstable angina and myocardial infarction), peripheral vascular disease and devise management plan for a patient of acute myocardial Infarction

35.	DRUGS FOR CARDIAC FAILURE	4.9	Explain salient pharmacokinetics, pharmacodynamics, therapeutic uses, adverse drug reactions of drugs used for the management of heart failure. Devise management plan for heart failure patients and describe the strategies to prevent long term complications of heart failure.
36.	ANTIARRHYTHMICS	4.10	Explain salient pharmacokinetics, pharmacodynamics, therapeutic uses, adverse drug reactions of drugs used for cardiac arrhythmias. Devise a plan to manage a patient with supraventricular, ventricular arrhythmias, cardiac arrest and fibrillations
37.	HYPOLIPEDEMICS	4.11	Explain salient pharmacokinetics, pharmacodynamics, therapeutic uses, adverse drug reactions of drugs used for the management of dyslipidemias and enumerate drugs leading to dyslipidemias
Topic 5: Respiratory system			
38.	DRUGS FOR BRONCHIAL ASTHMA	5.1	Devise management of various stages of Bronchial asthma, COPD. Explain salient pharmacokinetics, pharmacodynamics, therapeutic uses, adverse drug reactions of drugs used for the management of Bronchial asthma, COPD and Rhinitis.
39.	DRUGS FOR COUGH	5.2	Explain types, salient pharmacokinetics, pharmacodynamics, therapeutic uses, adverse drug reactions of drugs used for cough management. Describe management of dry & productive cough
Topic 6: Gastrointestinal system			
40.	DRUGS FOR PEPTIC ULCERS	6.1	Explain types, salient pharmacokinetics, pharmacodynamics, therapeutic uses, adverse drug reactions of drugs used in Acid peptic diseases including Peptic Ulcers, GERD and devise a management plan for a case of peptic ulcer.
41.	PROKINETICS AND ANTI EMETICS	6.2	Describe types, salient pharmacokinetics, pharmacodynamics, therapeutic uses, adverse drug reactions of prokinetics & drugs used for emesis and antiemetics.
42.	ANTIDIARRHEALS	6.3	Describe salient pharmacokinetics, pharmacodynamics, therapeutic uses, adverse drug reactions of drugs used for the management of diarrhea and devise pharmacotherapeutic plan to manage acute and chronic diarrhea in adults and children.
43.	DRUGS FOR CONSTIPATION	6.4	Describe salient pharmacokinetics, pharmacodynamics, adverse drug reactions of drugs used for the management of constipation and devise management plan for a case of constipation

44.	MANAGEMENT OF IRRITABLE BOWEL DISORDER	6.5	Describe salient pharmacokinetics, pharmacodynamics, adverse drug reactions of drugs used for the management of Inflammatory Bowel Disease and Irritable Bowel Disorders
Topic 7: Endocrine system			
45.	DRUGS FOR DIABETES MELLITUS	7.1	Describe the types, kinetics, dynamics, adverse drug reactions of drugs used in diabetes mellitus and devise management for an obese and non-obese diabetic patient & also comment on prevention of complications of the diabetes.
46.	DRUGS USED IN OSTEOPOROSIS	7.2	Describe the types, kinetics, dynamics, therapeutic uses, adverse drug reactions of drugs used in osteoporosis and devise management plan for a female and male patient with osteoporosis.
47.	DRUGS USED IN THYROID DISORDERS	7.3	Describe the types, kinetics, dynamics, adverse drug reactions of drugs used in thyroid Disorders and devise a management plan for a case with thyroid Disorder.
48.	ANTERIOR PITUITARY HORMONES	7.4	Describe the types, mechanisms of action, adverse effects, indications and contraindications of the drugs which modify the release of Anterior Pituitary Hormones
49.	CORTICOSTEROIDS	7.5	Explain the types, kinetics, dynamics, adverse effects, indications and contraindications of corticosteroids and communicate to patient the appropriate use of corticosteroids
50.	ANDROGENS AND DRUGS FOR ERECTILE DYSFUNCTIONS	7.6	Describe the types, kinetics, dynamics, adverse effects, indications and contraindications of Androgens and drugs used of Erectile Dysfunction
51.	ORAL CONTRACEPTIVES	7.7	Explain the types, kinetics, dynamics, adverse effects, indications and contraindications of drugs which modify Female Reproductive Functions including contraceptives. Explain the important instruction for use of female and male contraceptives
52.	UTERINE RELAXANTS AND STIMULANTS.	7.8	Explain the types, kinetics, dynamics, adverse effects, indications and contraindications of uterine relaxants and stimulants.
53.	TREATMENT OF INFERTILITY	7.9	Describe drugs used for treatment of Infertility
Topic 8: Chemotherapy			
54.	INTRO. TO CHEMOTHERAPY	8.1	Discuss general principles of chemotherapy with emphasis on antimicrobial resistance.
		8.2	Discuss rational use of antimicrobials and describe antibiotic stewardship program of your institute
55.	SULPHONAMIDES	8.3	Explain the kinetics, dynamics, adverse effects, indications of the following antibacterial drugs: Sulphonamides, Quinolones, Beta- lactams, Macrolides, Tetracyclines, Aminoglycosides, and
56.	MACROLIDES		
57.	AMINOGLYCOSIDES		
58.	BETALACTAMS: PENICILLINS		

59.	BROAD SPECTRUM ANTIBIOTICS		newer antibacterial drugs
60.	CEPHALOSPORINS		
61.	PHARMACOTHERAPY OF UTI AND STDs	8.4	Devise a pharmacotherapeutic plan for UTI and STDs and explain to patient the instructions and adherence to treatment.
62.	ANTITUBERCULARS	8.5	Explain the types, kinetics, dynamics, therapeutic uses and adverse effects of drugs used in tuberculosis. Devise management plan for tuberculosis treatment in various categories.
63.	ANTILEPROSY	8.6	Discuss the types, Kinetics, dynamics, adverse effects for drugs used for Leprosy and outline management of Leprosy reactions
64.	ANTI PROTOZOAL	8.7	Discuss the types, Kinetics, dynamics, adverse effects of drugs used for following Protozoal / Vector borne diseases: 1. Amoebiasis 2. Kala-azar 3. Malaria 4. Filariasis
65.	ANTIFUNGALS	8.8	Explain the types, kinetics, dynamics, adverse effects of drugs used for fungal infections
66.	ANTI HELMINTHICS	8.9	Discuss the types, kinetics, dynamics, adverse effects of drugs used for Intestinal Helminthiasis
67.	ANTIVIRALS AND RETROVIRALS	8.10	Discuss the types, kinetics, dynamics, adverse effects, indications and contraindications of drugs used for viral diseases including HIV
68.	ANTICANCERS	8.11	Describe the types, kinetics, dynamics, adverse effects, indications and contraindications of anti-cancer drugs. Devise plan for amelioration of anticancer drug induced toxicity.
69.	Topic 9: Miscellaneous FOR SDL/ SEMINARS		
70.	IMMUNOMODULATORS	9.1	Describe the types, kinetics, dynamics, therapeutic uses, adverse drug reactions of immunomodulators
71.	CHELATING AGENTS	9.3	Describe chelating agents and make a plan for management of heavy metal poisoning
72.	VACCINES AND SERA	9.4	Describe basics of vaccine use and types of vaccines
73.	ANTISEPTICS AND DISINFECTANTS	9.5	Describe types, precautions and uses of antiseptics and disinfectants
74.	DRUGS FOR SKIN DISORDERS	9.6	Describe drugs used in various skin disorders like acne vulgaris, scabies, pediculosis, psoriasis including sunscreens
75.	DRUGS FOR GLAUCOMA	9.7	Describe drugs used in glaucoma and other ocular disorders including topical (ocular) drug delivery systems

7. PRACTICAL SYLLABUS

1. Oral route and drug dosage forms
2. Parenteral routes and drug dosage forms
3. Topical route and drug dosage forms
4. New drug delivery systems
5. Pharmacokinetics I
6. Pharmacokinetics II
7. Dosage Calculations
8. Pharmacodynamics
9. Adverse Drug Reactions and ADR reporting
10. Clinical trials
11. Sources of drug information
12. Rational Pharmacotherapy
13. Effect of drugs on Dog's Blood Pressure and heart rate (CAL)
14. Fixed dose combinations
15. Prescription writing
16. Prescription criticism
17. P-Drugs
18. Critical evaluation of the drug promotional literature
19. Clinical skills
20. Communication skills

8. PAPER WISE DISTRIBUTION OF TOPICS FOR PRELIM / UNIVERSITY EXAMINATION

Paper	Section	Topics
I	A	MCQsonalltopicsofthePaperI
	B	General Pharmacology
		Autonomic Nervous system including skeletal muscle relaxants
		Cardiovascular system
		Hematology
		Autacoids, Local anesthetics
		Respiratory system
		AETCOM-2.2, 2.3 (section one SAQ)
	A	MCQsonalltopicsofthepaperII
	B	Central Nervous system including general Anesthesia
		Endocrine system
		Chemotherapy system
		Gastrointestinal drugs
		Misc. Topics: Chelating agents, Vaccines and Antisera, ocular pharmacology, dermatological pharmacology, nutraceuticals, AETCOM-2.5 (section one SAQ)

9. EVALUATION

A. PLAN FOR INTERNAL ASSESSMENT: Distribution for Theory and Practical Exam

Pattern	Exam	Examination Head	
		Theory	Practical
Formative assessment	PCT I	50	50
	PCT II	50	50
	Preliminary Examination	200	100
	Total No. of marks	300	200
Continuous Assessment (Log Book)		100	100
	Total	400	300
	TO BE CONVERTED	100	100

1. There will be 3 internal assessment examinations in Pharmacology. The structure of the internal assessment theory examinations will be similar to the structure of University Examinations.
2. It is mandatory for the students to appear for all the internal assessment examinations.
3. There will be only one additional examination for absent students (due to genuine reason) after approval by the Institutional Grievances Committee. It shall be taken after preliminary examination and before submission of internal assessment marks to the University.
4. Internal assessment marks for theory and practicals will be converted to 100 marks each
5. Students must secure at least 50% marks of the total marks 100 of internal assessment **(combined in theory, practical and Log Book; not less than 40 % marks in theory, practical or Log Book)** to be eligible for appearing University examination
6. Internal assessment marks will reflect as separate head of passing at the summative examination.
7. Internal assessment marks will not to be added to marks of the University examinations and will be shown separately in mark list.

INTERNAL ASSESSMENT SCHEME

• Theory

Dr. Balasaheb Vikhe Patil Rural Medical College, Loni Department of Pharmacology Theory												
			Formative Assessment Theory			Continuous Internal Assessment Theory						
S.No.	Roll No.	Name of Student	1 st PCT Theory	2 nd PCT Theory	Prelims Theory (Paper I & II)	Home Assignment	Continuous Class Test (LMS)	Seminar	Museum study	Library assignments	Attendance Theory	Int. assess. theory total 400/4
			50	50	200	15	30	15	15	15	10	100
						Self-Directed Learning					Total	
											400	

• Practicals

Dr. Balasaheb Vikhe Patil Rural Medical College, Loni Department of Pharmacology Practical											
			Formative Assessment			Continuous Internal Assessment (Practical)					
S. No.	Roll No.	Name of Student	1 st PCT practical / First ward leaving Examination	2 nd PCT Practical / Second Ward Leaving Examination	Prelims Practical	Certifiable skill-	AETCOM Competencies	SVL Lab activity/ Record book/ Portfolio	Attendance (Practical)	Total	Int. assess. theory total 300/3
			50	50	100	30	30	20	10	10	100

A. UNIVERSITY EXAMINATION & PRELIMINARY EXAMINATION MARK DISTRIBUTION

Type of exam		Maximum marks	Minimum Marks
SUMMATIVE			
Theory (Two Papers)	Paper I	100	40
	Paper II	100	40
	Total	200	100
Practicals		100	50
Total		300	150

B. Pattern of Theory Examination in final examination including Distribution of Marks, Questions, and Time.

- i. Two theory papers : 100 marks each
- ii Total duration : 3 hrs. each (There will be 2 sections in each.)
- iii Paper I : General Pharmacology, Autonomic Nervous system including skeletal muscle relaxants, cardiovascular system, Hematology, Autacoids, local anesthesia, Respiratory system. AETCOM- 2.2, 2.3
- iv Paper II : Central Nervous system including general Anesthesia, Endocrine system, Chemotherapy system, Gastro intestinal drugs, Misc. Topics (Chelating agents, Vaccines and Antisera, ocular pharmacology, dermatological pharmacology, nutraceuticals, AETCOM- 2.5)

C. QUESTION PAPER PATTERN

Paper I- General Pharmacology, Autonomic Nervous system including skeletal muscle relaxants, cardiovascular system, Hematology, Autacoids, Local anesthesia Respiratory system, AETCOM- 2.2, 2.3

Section	Question No	Type	No of Questions	Marks
A	Question 1.	MCQ	10	20
B	Question 2	Long Answer Question	1	12
	Question 3	Short Notes	3 / 4	18
	Question 4	Short Answer Question	5 / 6	10
C	Question 5	Long Answer Question	1	12
	Question 6	Short notes	2 / 3	12
	Question 7	Short Answer Question	5 / 6	10
	Question 8	AETCOM 2.2, 2.3	1	06

Paper II- Central Nervous system including general/ Endocrine system, Chemotherapy system, Gastro intestinal drugs, Misc. Topics (Chelating agents, Vaccines and Antisera, ocular pharmacology, dermatological pharmacology, nutraceuticals, occupational and environmental pharmacology, toxicology), AETCOM- 2.5.

Section	Question No	Type	No of Questions	Marks
A	Question 1.	MCQ	10	20
B	Question 2	Long Answer Question	1	12
	Question 3	Short Notes	3 / 4	18
	Question 4	Short Answer Question	5 / 6	10
C	Question 5	Long Answer Question	1	12
	Question 6	Short notes	2/ 3	12
	Question 7	Short Answer Question	5 / 6	10
	Question 8	Short note (AETCOM 2.5)	1	6

D. PRACTICAL EXAMINATION:

1	Viva a. Viva I- 15 marks b. Viva II- 15 marks	:	30 marks
2	Clinical Pharmacology and pharmacy a. Prescription writing- 10 marks b. Prescription criticism and rewriting: 05 marks c. FDC – 5 marks d. ADR identification / ADR reporting- 5 marks e. P- drug list- 5 marks. f. Dose calculations- 5marks g. Dosage form- 5 marks,	:	40 marks
3	Experimental Pharmacology OSPE and clinical skill a. Drug administration using mannequin :10 b. / Drug effect using CAL software (or any other)- 10 marks	:	20 marks
4	Communication OSPE a. prescription communication / ethics- legal drug storage/ use of device/drug adherence-compliance/ drug dependence/OTC/ interaction with medical representative- 10 marks	:	10 marks
	Total Marks		100 marks

E. PCT I and II**1. Theory and Practical including Viva Mark Distribution**

Internal Assessment	Theory	50	16
	Practical	50	16
	Total	100	50

2. Theory Examination Pattern

Question No	Type	No of Questions	Marks
Question 1.	MCQ	10	10
Question 2	Long Answer Question	1	12
Question 3	Short Notes	3 / 4	18
Question 4	Short Answer Question	5 / 6	10

3. Practical Examination:
For Ist and IInd term examinations

1	Viva	:	10 marks
2	Clinical Pharmacy a. Dosage form b. ORS preparation/ IV drip setting c. Dose calculation	:	10 marks
3	Clinical Pharmacology a. Prescription writing b. Prescription criticism and rewriting / justification of FDC c. ADR identification / ADR reporting- 5 marks d. P- drug list	:	20 marks
4	Experimental Pharmacology a. Drug administration using mannequin / drug effect using CAL software (or any other)	:	5 marks
5	Communication OSPE a. prescription communication / ethics- legal drug storage/ use of device/drug adherence-compliance/ drug dependence/OTC/ interaction with medical representative	:	5 marks
	Total Marks		50 marks

10. BOOKS RECOMMENDED:

1. Basic & Clinical Pharmacology. Katzung BG (Ed), Publisher: Prentice Hall International Ltd., London.
2. Pharmacology & Pharmacotherapeutics. Satoskar RS, Bhandarkar SD (Ed), Publisher: Popular Prakashan, Bombay.
3. Essentials of Medical Pharmacology. Tripathi KD (Ed), Jaypee Brothers, publisher: Medical Publishers (P) Ltd.
4. Clinical Pharmacology. Laurence DR, Bennet PN, Brown MJ (Ed). Publisher: Churchill Livingstone

Reference books:

1. Goodman & Gilman S The Pharmacological Basis of Therapeutics. Hardman JG & Limbird LE (Ed), Publisher: McGraw-Hill, New York.
2. A Textbook of Clinical Pharmacology. Roger HJ, Spector RG, Trounce JR (Ed), Publisher: Hodder and Stoughton Publishers.



[Signature]

Registrar
Pravara Institute of Medical Sciences
(Deemed to be University)
Loni - 413736, Tal. Rahata
Dist. Ahmednagar (M.S. India)