

Contents

<i>Contributors</i>	<i>vii</i>
<i>Foreword by Prof (Dr) Hemchandra Pandey</i>	<i>ix</i>
<i>Preface</i>	<i>xi</i>
<i>Index of Competency</i>	<i>xvii</i>

UNIT I: General Pharmacology

1. Rational Drug Use in Clinical Practice	1
2. Clinical Pharmacokinetics	10
3. Posology (Dose Calculations)	17
4. Chronotherapeutics	18
5. Dosing in Pediatric Group	21
6. Geriatric Pharmacology	23
7. Drug Use in Pregnancy	26
8. Drug Use in Lactation	30
9. Drug Interactions	32

UNIT II: Central Nervous System

10. Treatment of Alcohol Use Disorder	36
11. Treatment of Epilepsy	39
12. Treatment of Parkinsonism	47
13. Treatment of Psychotic and Mood Disorders	53
14. Treatment of Acute and Chronic Pain and Treatment of Migraine	59
15. Treatment of Alzheimer's Disease	87

UNIT III: Cardiovascular System

16. Management of Hypertension	91
17. Treatment of Hyperlipidemia	97
18. Treatment of Angina and Myocardial Infarction	103
19. Treatment of Arrhythmias	108

- | | |
|---|-----|
| 20. Treatment of Congestive Heart Failure | 117 |
| 21. Treatment of Shock | 123 |

UNIT IV: Blood

- | | |
|--|-----|
| 22. Hemopoietic Agents and Treatment of Anemia | 127 |
| 23. Treatment of Bleeding Disorders | 131 |
| 24. Treatment of Thromboembolic Disorders | 136 |

UNIT V: Kidney and Urinary Tract

- | | |
|--|-----|
| 25. Infections of Kidney and Urinary Tract | 144 |
| A. Uncomplicated and Complicated UTI | |
| B. Diseases of Kidney—Acute Pyelonephritis, Chronic Pyelonephritis | |
| C. Assessment of Kidney Function | |
| D. Classification of Glomerulopathies | |
| E. Pathophysiology of Acute Kidney Injury (AKI) and Treatment | |
| F. Pathophysiology of Chronic Kidney Disease (CKD) and its Treatment | |

UNIT VI: Joint Disorders

- | | |
|--|-----|
| 26. Treatment of Rheumatoid Arthritis and Gout | 156 |
|--|-----|

UNIT VII: Respiratory System

- | | |
|---------------------------------------|-----|
| 27. Treatment of Respiratory Diseases | 162 |
| 28. Pulmonary Function Tests | 182 |

UNIT VIII: GIT, Liver, Pancreas

- | | |
|--|-----|
| 29. Treatment of Diarrhea, Constipation and Vomiting | 196 |
| 30. Treatment of Peptic Ulcer | 207 |
| 31. Treatment of Liver, Intestine, and Pancreatic Diseases | 211 |

UNIT IX: Endocrine System

- | | |
|--|-----|
| 32. Treatment of Diabetes Mellitus | 216 |
| 33. Treatment of Thyroid Disorders | 226 |
| 34. Treatment of Gynecological Disorders and Obstetric Complications | 229 |
| 35. Treatment with Androgens in Various Clinical Disorders | 242 |
| 36. Treatment of Adrenal Hormones Disorders | 244 |

UNIT X: Treatment of Infectious Diseases

37. Treatment of Malaria	246
38. Treatment of Tuberculosis	250
39. Treatment of Viral illness	255
40. Treatment of AIDS (Acquired Immunodeficiency Syndrome)	261
41. Use of Antimicrobials	271
42. Treatment of Fungal Diseases	272
43. Treatment of Amoebiasis and other Protozoal Infections	274
44. Anthelmintic Drugs	278
45. Treatment of Leprosy	281
46. Treatment of Sexually Transmitted Diseases	285
47. Treatment of Septicemia and Antimicrobials for Systemic Therapy	292

UNIT XI: Treatment in other Clinical Specialities

48. Treatment of Osteoporosis	295
49. Treatment of Common Ophthalmic Diseases	297
50. Treatment of Common Pediatric Diseases	309
51. Treatment of Common Skin Diseases	318
52. Treatment in Dental Practice	331
53. Treatment of Medical Emergencies	353
54. Dengue and Management	367
55. Treatment of COVID SARS-2	373

<i>Index</i>	<i>379</i>
--------------	------------

Index of Competency

Code	Competency	Chapter	Page No.
PH1.4.2	Describe bioavailability and explain its parameters along with clinical significance.	2	10, 11
PH1.4.3	Explain distribution and factors affecting distribution.	2	11, 12
PH1.4.5	Discuss how plasma protein binding affect volume of distribution and its clinical significance.	2	11
PH1.4.6	Define biotransformation and discuss different types of biotrasformation reactions.	2	12
PH1.4.7	Explain factors modifying biotransformation and its consequences.	2	12, 13
PH1.4.8	Enumerate cytochrome P-450 enzyme and discuss its clinical significance induction and inhibition of cytochrome P-450.	2	12
PH1.4.9	Explain first pass metabolism and its clinical significance.	2	12, 13
PH1.4.10	Define clearance and discuss its kinetics of elimination.	2	14
PH1.4.11	Discuss the elimination of drugs through renal route and factors modifying it.	2	14
PH1.4.12	Define plasma half-life and explain its clinical significance.	2	13, 14
PH1.4.13	Discuss the steady state plasma concentration and how to calculate it.	2	14
PH1.4.14	Describe maintenance and loading dose and explain is clinical significance.	2	12
PH1.7.3	Discuss teratogenic effect of drug and classify risk category of drugs during pregnancy.	1	5, 6
PH1.8.1	Explain different types of drug interactions.	9	33–35
PH1.8.2	Discuss mechanism of drug interaction on the basis of pharmacokinetics and pharmacodynamics with example.	9	32–35
PH1.9.3	Explain about drug compendia India and essential drug concept.	1	8
PH1.10.1	Discuss the different parts of prescription.	1	5, 6
PH1.10.2	Describe the qualities of a correct, complete and legible generic prescription.	1	5
PH1.10.6	Design rational prescription for specific case.	1	2, 3
PH1.12.1	Discuss the drug dosage calculation.	3	17
PH1.12.2	Explain the calculation of dosage of drug using different formula for an individual patient.	3	17
PH1.12.3	Describe the dose calculation in children, elderly and renal failure patient.	2	15, 22, 24
PH1.12.4	Discuss the calculation of IV drug rate in various clinical conditions.	3	17
PH1.13.10	Discuss the different drugs used in glaucoma.	49	300, 301

Code	Competency	Chapter	Page No.
PH1.13.11	Define different types of glaucoma and explain the etiology of increase intraocular tension in glaucoma.	49	299, 300
PH1.14.10	Discuss the management of organophosphorus poisoning and atropine poisoning.	53	357, 358
PH1.1.16.1	Explain the biosynthesis of histamine, distribution of receptors and pathophysiological role and pharmacological effects.	27	162
PH1.16.2	Describe mechanism of action, types, doses, side-effects, indications and contraindications of antihistaminic.	27	162–164
PH1.16.4	Describe mechanism of action, types, doses, side-effects, indications and contraindications of antiserotonin drugs.	14	81
PH1.16.5	Discuss the pathophysiology of migraine and drugs used for acute onset and prophylaxis of migraine.	14	81,82
PH1.16.8	Classify NSAIDs. Explain its mechanism of action, types, doses, side-effects, and indications.	14	66, 67, 329, 330
PH1.16.9	Explain pathophysiology of pain, inflammation, and fever.	14	67
PH1.16.10	Discuss the salient features of individual important NSAIDs (aspirin, paracetamol, naproxen).	14	66
PH1.16.11	Discuss the pathophysiology of gout with clinical features and explain the drugs used for acute and chronic gout.	26	159–161
PH1.16.12	Discuss the pathophysiology of rheumatoid arthritis and clinical features.	26	156
PH1.16.13	Classify the drugs used for rheumatoid arthritis and analyse their mechanism of action and utility.	26	157, 158
PH1.19.5	Classify antipsychotics and explain their mechanism/s of action. Discuss the side-effects, adverse drug reaction, doses, indications and contraindications of typical antipsychotic drugs.	13	53–56
PH1.19.6	Classify atypical antipsychotics and explain their mechanism/s of action. Discuss the side-effects adverse drug reaction, doses, indications and contraindications of atypical antipsychotic drugs.	13	53, 54
PH1.19.8	Classify antidepressants and discuss types of depression, their mechanism/s of action, therapeutic usage, side-effects, adverse drug reaction, doses indications and contraindications.	13	55, 56
PH1.19.9	Classify antimanic and discuss their mechanism/s of action therapeutic usage, side-effects, adverse drug reaction, doses, indications and contraindications.	13	56, 57
PH1.19.10	Classify opioid agonist, their mechanism/s of action therapeutic usage, side-effects, adverse drug reaction, doses, indications and contraindications.	14	67, 68
PH1.19.12	Classify antiparkinsonian drugs, their mechanism/s of action, therapeutic usage, side-effects, adverse drug reaction, doses, indications and contraindications.	12	48–51
PH1.19.13	Classify drugs used in Alzheimer, their mechanism/s of action, therapeutic usage, side-effects, adverse drug reaction, doses, indications and contraindications.	15	88–90

Code	Competency	Chapter	Page No.
PH1.19.14	Classify antiepileptic drugs and explain types, mechanism/s of action, uses, doses, side-effects, adverse drug reaction, indications and contraindications of conventional antiepileptic agent.	11	39–44
PH1.19.15	Classify antiepileptic drugs and explain types, mechanism/s of action, uses, doses, side-effects, adverse drug reaction, indications and contraindications of newer antiepileptic agents.	11	43, 44
PH1.20	Discuss psychiatric issues related to alcohol intake.	10	36
PH1.20.1	Describe the effects of acute and chronic ethanol intake and explain its dynamics and kinetics. discuss its effect on physiological system.	10	36, 37
PH1.21.1	Describe the metabolism of ethanol and methanol. Discuss the symptoms of methanol and ethanol poisonings.	10	36, 37
PH1.21.2	Describe the management of ethanol and methanol poisoning.	10	37
PH1.25.1	Discuss the blood haemostasis.	23	131–133
PH1.25.2	Classify anticoagulants and explain their mechanisms of actions, side-effects, indications and contraindications.	24	137–139
PH1.25.3	Discuss various anticoagulants with their clinical significance.	24	137–139
PH1.25.4	Discuss various antiplatelets with their clinical significance.	24	141–143
PH1.25.5	Classify antiplatelets and explain their mechanisms of actions, side-effects, indications and contraindications.	24	141–143
PH1.25.6	Classify fibrinolytics and antifibrinolytics and explain their mechanisms of actions, indications and contraindications.	18	166
PH1.27	Describe the mechanisms of action, types, doses, side-effects, indications and contraindications of antihypertensive drugs and drugs used in shock.	21	93–96, 124, 25
PH1.27.1	Classify the antihypertensive, explain their mechanism of action, types, doses, side-effects, indications and contraindications of RAS inhibitors, diuretics, sympathetic inhibitors.	16	93, 94
PH1.27.2	Classify the antihypertensive, explain their mechanism of action, types, doses, side-effects, indications and contraindications of CCB, vasodilators and misc.	16	93, 95, 104
PH1.27.3	Analyse the JNC classification and its guidelines and management protocol.	16	91, 95
PH1.27.4	Discuss antihypertensive drugs used in pregnancy, asthma and diabetics patient and PVD.	16	28, 94
PH1.27.5	Discuss the treatment/management hypertensive crisis in resistant hypertension.	16	96
PH1.27.6	Classify the different types of shocks. Explain the pathophysiology of different types of shocks.	21	123, 124
PH1.27.7	Discuss the pharmacotherapy used for different types of shocks.	21	124, 125
PH1.28.1	Discuss the pathophysiology and clinical features of different types of angina.	18	103
PH1.28.2	Classify antianginal drugs and explain their mechanisms of action, types, doses, side-effects, indications and contraindications of nitrates and beta-blockers.	18	103,104

Code	Competency	Chapter	Page No.
PH1.28.3	Explain the mechanisms of action, types, doses, side-effects, indications and contraindications of CCBs and miscellaneous others.	18	104
PH1.28.4	Discuss the management STEMI and NSTEMI (myocardial infraction).	18	106, 107
PH1.28.5	Discuss the clinical features of PVD and its management.	18	105
PH1.28.5	Describe the mechanisms of action, types, doses, side-effects, indications and contraindications of drugs used in PVD.	18	105
PH1.29.1	Discuss the clinical features of congestive heart failure with its pathophysiology.	20	117, 118
PH1.29.2	Classify the drugs used for CHF, discuss their mechanisms of action, types, doses, side-effects, indications and contraindications of cardiac glycosides.	20	119–121
PH1.29.3	Discuss the mechanisms of action, types, doses, side-effects, indications and contraindications and drug interactions of other misc. drugs used in CHF.	20	122
PH1.29.4	Discuss management of CHF.	20	118
PH1.30.1	Discuss the electrophysiology of heart and different mechanisms of arrhythmia.	19	108, 109
PH1.30.2	Classify antiarrhythmic drugs and explain their mechanisms of action, types, doses, side-effects, indications and contraindications.	19	114–116
PH1.30.3	Explain the utility of digoxin, adenosine, magnesium and potassium as antiarrhythmic drugs.	19	115
PH1.30.4	Discuss the clinical features and management of most common type of atrial, supraventricular and ventricular arrhythmia.	19	114–116
PH1.31.1	Discuss the lipid metabolism and lipid transport.	17	97–99
PH1.31.2	Discuss pathophysiology of hyperlipidaemia.	17	98, 99
PH1.31.3	Classify the drugs used for dyslipidaemia and discuss their mechanisms of action, types, doses, side-effects, indications and contraindications of statins.	17	99–101
PH 1.31.4	Discuss their mechanisms of action, types, doses, side-effects, indications and contraindications of non-statins.	17	100
PH 1.31.5	Discuss the management of dyslipidaemia (raised LDL.TG levels <low HDL).	17	102
PH1.32.1	Discuss the pathophysiology of bronchial asthma.	27	167
PH1.32.2	Classify the drugs used for bronchial asthma and describe their mechanism of action, types, doses, side-effects, indications and contraindications.	27	168–174
PH1.32.3	Discuss the management of status asthmaticus and COPD.	53	358
PH1.33.1	Explain the physiology of dry and productive cough.	27	165, 166
PH1.33.2	Discuss the clinical management of dry and productive cough.	27	165, 166
PH1.33.3	Classify the drugs used for productive cough and explain their mechanism of action, types, doses, side-effects, indications and contraindications.	27	166

Code	Competency	Chapter	Page No.
PH1.34.1	Discuss the pathophysiology of peptic ulcers and its clinical features of different types peptic ulcers.	30	205
PH1.34.2	Classify the drugs used in peptic ulcer disease and describe their MOA, types, doses, side-effects, indications, contraindications and drug interaction.	30	204–206
PH1.34.3	Explain the management of <i>H. pylori</i> and different types of peptic ulcers.	30	207
PH1.34.7	Classify antidiarrheal drugs and describe their mechanism of action, types, doses, side-effects, indications and contraindications.	29	201
PH1.34.8	Discuss about the rehydration therapy in diarrhea and discuss management of diarrhea.	29	200
PH1.34.9	Classify drugs used for constipation and discuss their mechanism of action, types, doses, side-effects, indications and contraindications.	29	202, 203
PH1.34.10	Explain the drugs used in irritable bowel disorders, biliary and pancreatic diseases.	31	203, 208–212
PH1.34.11	Discuss the management of inflammatory bowel disease.	31	201, 202
PH1.34.4	Describe about neural pathway of pathogenesis of emesis.	29	202
PH1.34.5	Classify antiemetic drugs and explain their mechanism of action, types, doses, side-effects, indications and contraindications.	29	202
PH1.35.2	Discuss the different types of anemia, etiology and clinical features.	22	127
PH1.35.3	Discuss the physiology of transport, storage and disposition of iron in the body.	22	128
PH1.35.4	Discuss different drugs for various type of anaemia.	22	128–130
PH1.36.1	Discuss the function of thyroid hormones and various pathological disorders.	33	223, 224
PH1.36.2	Discuss the mechanism of action, types, doses, side-effects, indications and contraindications of drugs used in thyroid disorders.	33	223–225
PH1.36.4	Discuss the various drugs used in treatment of osteoporosis.	48	292, 293
PH1.36.5	Define diabetes mellitus and explain the types, clinical features, investigations, management and complications of the disease.	32	213, 214
PH1.36.6	Classify the drugs used for diabetes and explain the mechanism of action, types, doses, side-effects, indications and contraindications.	32	219, 220, 222, 291
PH1.36.7	Discuss the structure of insulin, its analogues uses side-effects, indications and contraindications.	32	215–219
PH1.36.8	Discuss management of diabetes and its complication according to latest guidelines.	32	221
PH1.37.4	Discuss the mechanisms of action, types, doses, side-effects, indications and contraindications of estrogens and its analogue.	34	226–228
PH1.37.5	Discuss the mechanisms of action, types, doses, side-effects, indications and contraindications of antiestrogens and SERMs.	34	227
PH1.37.6	Discuss the mechanisms of action, types, doses, side-effects, indications and contraindications of progesterone.	34	228

Code	Competency	Chapter	Page No.
PH1.37.7	Discuss the mechanisms of action, types, doses, side-effects, indications and contraindications of antiprogesterones.	34	234
PH1.37.8	Discuss the mechanisms of action, types, doses, side-effects, indications and contraindications of androgens.	35	239, 240
PH1.37.9	Discuss the mechanisms of action, types, doses, side-effects, indications and contraindications of antiandrogens.	35	240
PH1.37.10	Discuss hormone replacement therapy of various endocrine pathological conditions.	34	227, 240
PH1.38.1	Discuss the physiological role of mineralocorticoids and glucocorticoids.	36	241
PH1.38.2	Discuss their mechanism of action, types, doses, side-effects, indications and contraindications.	36	241, 242
PH1.39.1	Discuss the mechanism of action, types, doses, side-effects, indications and contraindications of the drugs used for oral contraceptions.	34	228
PH1.40	Describe mechanism of action, types, does, side-effects, indications and contraindications of: 1. Drugs used in the treatment of infertility, and 2. Drugs used in erectile dysfunction	34	235, 236, 239
PH1.43.1	Discuss the rational use of antimicrobials in different types of infective conditions.	41	268, 307
PH1.43.3	Discuss the rational use of antimicrobials in different types of infective conditions in children.	50	312
PH1.44.1	Classify first-line antitubercular drugs and discuss their mechanisms of action, types, doses, side-effects, dosage and drugs interaction of same.	38	248
PH1.44.2	Discuss the management of tuberculosis.	38	250
PH1.45.2	Discuss the drugs of MDR and XDR tuberculosis.	38	250
PH1.45.3	Describe regimens for MDR-TB according to latest guidelines.	38	253
PH1.45.4	Discuss the drugs used in MDR and XDR tuberculosis.	38	253, 254
PH1.46.1	Discuss different types of leprosy with its clinical features and pathophysiology.	45	278, 279
PH1.46.2	Classify antileprotic drugs and explain their mechanisms of action, types, doses, side-effects, indications and contraindications.	45	251, 280
PH1.46.3	Discuss the management of different types of of leprosy.	45	280
PH1.47.1	Discuss the life cycle of malarial parasite.	37	233
PH1.47.2	Classify the drugs used for different types of malaria with their mechanisms of action, types, doses, side-effects, indications and contraindications (mechanisms of action of drug acting at different stages of life cycle of parasite).	37	244–246
PH1.47.3	Discuss the different types of antimalarial therapy and their regimens.	37	244–246

Code	Competency	Chapter	Page No.
PH1.47.4	Discuss the treatment of complicated and uncomplicated malaria/chloroquine resistant malaria/falciparum/ovale/vivax.	37	244–246
PH1.47.5	Discuss the life cycle of the parasite causing Kalaazar.	43	273, 274
PH1.47.6	Classify the drugs used for Kala Azar with their mechanisms of action, types, doses, side-effects, indications and contraindications.	43	273, 274
PH1.47.7	Discuss life cycle of <i>E. histolytica</i> .	43	271, 272
PH1.47.8	Discuss the drugs used for amoebiasis and explain their mechanisms of action, types, doses, side-effects, indications and contraindications.	43	271, 273
PH1.47.9	Discuss life cycle of intestinal helminths.	44	275
PH1.47.10	Classify drugs used as anthelmintic and explain their mechanisms of action, types, doses, side-effects, indications and contraindications.	44	276, 277
PH1.48.1.2	Classify the drug used in UTI and discuss their mechanisms of action, types, doses, side-effects, indications and contraindications.	25	144–146
PH1.48.1.3	Discuss the etiology of STD, caused by different microorganisms and clinical presentation of STDs.	46	282–288
PH1.48.1.4	Classify the drug used in STD and discuss their mechanisms of action, types, doses, side-effects, indications and contraindications.	46	284–288
PH1.48.1.5	Discuss the different types of viruses and explain the viral multiplication in the human body.	39	252–254
PH1.48.1.6	Classify the drugs used for different types of viral infection. Discuss the mechanisms of action, types, doses, side-effects, indications and contraindications of non-retroviral drugs.	39	255–257
PH1.48.1.7	Classify the antiretroviral drug and discuss their mechanisms of action, types, doses, side-effects, indications and contraindications.	40	261, 267
PH1.48.1.8	Discuss antiretroviral therapy and its therapeutic regime.	40	261, 263
PH1.48.1.9	Describe the prophylaxis of HIV (host exposure prophylaxis, perinatal exposure prophylaxis).	40	264
PH1.57	Describe drugs used in skin disorders.	51	314–326
PH1.57.1	Discuss the diagrammatic representation of 3 compartments of skin related to drug delivery.	51	314
PH1.57.3	Discuss the different topical preparations and explain their mode of action (MOA), uses, adverse drug reaction (ADR) of topical antifungals.	42 and 51	269, 270
PH1.57.4	Discuss different systemic preparation and explain their MOA, uses, ADR of systemic antifungals.	42 and 51	269, 270
PH1.57.5	Discuss the drugs used for the treatment of psoriasis, acne, melanoma, vitiligo, and pruritis.	51	322–326
PH1.58	Describe drugs used in ocular disorders.	49	294–303
PH1.58.1	Discuss the ocular anatomy and physiology.	49	294
PH1.58.2	Describe the characteristics of ocular routes of drug administration.	49	306, 307

Code	Competency	Chapter	Page No.
PH1.58.3	Discuss different types of glaucoma and explain their management.	49	299–301
PH1.58.4	Describe the effect of different pharmacological agents on pupil size.	49	299–301
PH1.58.5	Enumerate topical antimicrobial, antiviral, antifungal for various ophthalmic diseases.	49	294–303
PH1.58.6	Describe the agents used to treat retinal neovascularization and macular degeneration.	49	303
PH1.59.1	Describe FDCs.	1	255–257
PH1.59.2	Discuss the therapeutic and toxic potential of over the counter drugs and rationality for FDCs.	1	4
PH1.59.3	Discuss the clinical aspects of uses of botanicals substances (herbals) (garlic, ginkgo biloba, ginseng, ST. John's wort, Milk thistle).	9	35