



Sri Guru Ram Das University of Health Sciences, Sri Amritsar

Department of Pharmacology

Theory Paper A		Theory Paper B	
Topics	Marks Distribution	Topics	Marks Distribution
General Pharmacology	15	Chemotherapy	30
Autonomic Nervous System	35	Hormones and Related Drugs	25
Autacoids	15	Cardiovascular Drugs And kidneys	25
Central Nervous System	25	Drugs Affecting Blood	10
Gastrointestinal Drugs & Chelating agents, vaccines, antisera, immunoglobulins	10	Immunosuppressant Drugs, Vitamins, Drugs Acting on Skin and Mucous Membranes, Antiseptics, Disinfectants and Ectoparasiticides	10
Total	100	Total	100



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Guidelines for question paper as per the Medical Council of India, Competency Based Undergraduate Curriculum for Indian Medical Graduate.

Theory paper should include questions from core competencies and not from Non Core Competency

BLUEPRINT OF THEORY PAPER

Sr. No.	Type	Explanation	Topics	Distribution of marks as per weightage
1.	MCQ		10 MCQs for Paper A 10 MCQs for Paper B	10 X 1 = 10 10 X 1 = 10
2.	Long essay question	<ol style="list-style-type: none"> The question should pose a Clinical/ Practical problem to the students and require them to apply knowledge and integrate it with disciplines. Avoid giving one liners as questions. Avoid giving one liners as questions. The question stem should be structured and marking distribution should be provided. Use action verbs from higher domains as given in this document. 	Paper A (TWO Questions) <ol style="list-style-type: none"> Structured Long Essay Question from core competencies Case based Long Essay Question from core competencies Paper B (Two Questions) <ol style="list-style-type: none"> Structured Long Essay Question from core competencies Case based Long Essay Question from core competencies 	1X10=10 1X10=10 1X10=10 1X10=10

3.	Short Notes	<p>These provide opportunity to sample a wider content, albeit in a short time. The questions should be task oriented rather than 'Write a short note on xxx'.</p> <p>Preferably use verbs (as per List attached) in framing questions and structure them as far as possible</p>	<p>Paper A (8 Questions) From Core Competencies as per competency based undergraduate curriculum for the Indian Medical Graduate, VOLUME 1 Marks for each part should be indicated separately</p>	8 X 5 = 40
			<p>Paper B (8 Questions) From Core Competencies as per competency based undergraduate curriculum for the Indian Medical Graduate, VOLUME 1 Marks for each part should be indicated separately</p>	8 X 5 = 40
4.	Reasoning Questions	<p>These provide excellent opportunities for testing integration, clinical reasoning and analytic ability of the student</p>	<p>Paper A (3 Questions) From Core Competencies as per competency based undergraduate curriculum for the Indian Medical Graduate, VOLUME 1</p>	3 X 5 = 15
			<p>Paper B (3 Questions) From Core Competencies as per competency based undergraduate curriculum for the Indian Medical Graduate, VOLUME 1</p>	3 X 5 = 15
5.	Applied Questions	<p>Questions on applied aspect</p>	<p>Paper A (3 Questions) From Core Competencies as per competency based undergraduate curriculum for the Indian Medical Graduate, VOLUME 1</p>	3 X 5 = 15
			<p>Paper B (3 Questions) From Core Competencies as per competency based undergraduate curriculum for the Indian Medical Graduate , VOLUME 1</p>	3 X 5 = 15

Total Marks 200(Paper A- 100 marks, Paper B-100 marks)

Blueprinting in knowledge domain
(Representative example only. Actual figures may vary with the subject and phase)

Level	Topic A	Topic B	Topic C	Topic D	Total
Knowledge	1	2	1	1	5(20%)
Comprehension	1	1	1	2	5(20%)
Application	2	1	1	1	5(20%)
Analysis	1	1	2	2	6(24%)
Synthesis		1		1	2(8%)
Evaluation	1		1		2(8%)
Total	6(24%)	6(24%)	6(24%)	7(28%)	25(100%)

Verbs in various levels in Knowledge domain (Bloom's taxonomy)

Knowledge	Define, Describe, Draw, Find, Enumerate, Cite, Name, Identify, List, label, Match, Sequence, Write, State, Choose ,Indicate, isolate, Order, Recognize, Underline
Comprehension	Discuss, Conclude, Articulate, Associate, Estimate, Rearrange, Demonstrate understanding, Explain, Generalise, Identify, Illustrate, Interpret, Review, Summarise, Extrapolate, Update
Application	Apply, Choose, Compute, Modify, Solve, Prepare, Produce, Select, Show, Transfer, Use
Analysis	Analyse, Characterise, Classify, Compare, Contrast, Debate, Diagram, Differentiate, Distinguish, Relate, Categorise
Synthesis	Compose, Construct, Create, Verify, Determine, Design, Develop, Integrate, Organise, Plan, Produce, Propose, rewrite
Evaluation	Appraise, Assess, Conclude, Critic, Decide, Evaluate, judge, Justify, Predict, Prioritise, Prove, Rank

The question part of the MCQ (item) is called STEM; correct answer is called the KEY and the rest of the options are called DISTRACTORS.

Steps in writing:

1. Select the specific learning objectives which you want to test.
2. Write the stem, it should be self-explanatory and complete, avoid using terms like (NOT, EXPECT, NEVER, ALWAYS, SOMETIMES) in the stem, if the terms are being used they should be in UPPERCASE and **bold** letter.
3. Write unambiguous and unarguably the correct answer to the stem.
4. Select the most plausible alternatives and arrange them in the form of options.
5. Avoid window dressing of the stem. This means adding superfluous and unnecessary words which confuses the student.
6. Abbreviations should be avoided.
7. Options should be grammatically parallel to the key, and should be parallel and have the same relation to the stem.
8. When writing options, avoid duplications or making options all inclusive, e 1-6, 6-10 etc.
9. The options should be arranged in rank order, eg. 256, 266, 280, 290 and not 290, 266, 280, 256.
10. "All the above" and "None of the above" should be avoided as an option.

Distribution of Marks: - Pharmacology

Papers		Maximum Marks	Minimum Passing Marks
Theory (Summative Assessment) (100 +100=200 Marks)	Theory Paper I(Sample paper Attached)	100	Atleast 40% marks in each paper with minimum 50% in aggregate (both papers together)
	Theory paper II(Sample paper Attached)	100	
Practical *(Summative Assessment) (60 + 40= 100 Marks) 1. Practical/clinical examinations will be conducted in the laboratories and /or hospital wards. The objective will be to assess proficiency and skills to conduct experiments, interpret data and form logical conclusion.) 2. Viva/oral examination should assess approach to patient management, emergencies, attitudinal, ethical and professional values. Candidate's skill in interpretation of common investigative data, identification of specimens, etc. is to be also assessed.	Prescription writing Prescription auditing Problem based learning/ case writing Drug interaction Dose Calculation Effect of Drugs on Dog's B.P Poisons and Antidotes Spotting exercise	80	50% (Practical + viva)
	Viva (oral examination should focus on the application and interpretation) 1. (oral examination should focus on the application and interpretation) Charts, Graphs, Photograph & Instrument etc	20	
Internal Assessment (Not added to the marks of the university examinations and should be shown separately in the grade card)	Theory	100	50% Combined in theory and practical (not less than 40% in each for eligibility for appearing for university examination
	Practical	100	

***During practical examinations you are requested to use different methods of assessment tools to improve authenticity. Please refer to competency based assessment module for UG medical education for more examples of assessment tools.**

Formative & Internal Assessment: - Internal assessment shall be based on day-to-day assessment. Efforts should be made to use multiple tools even for a given competency to improve validity and reliability of assessment

It shall relate to different ways in which learners participate in learning process which is day to day recorded in record book and log book in the form of :-

- a) Assignments,
- b) Preparation for seminar,
- c) Clinical case presentation,
- d) Preparation of clinical case for discussion,
- e) Clinical case study/problem solving exercise participation in project for health care in the community,
- f) Proficiency in carrying out a practical or a skill in small research project etc.

Regular periodic examination shall be conducted throughout the course as per following schedule:-

	Theory Internal Assessment (weightage in the form of marks)	Practical Internal Assessment (weightage in the form of marks)
First assessment test	15	10
Second assessment test	15	10
Send Up test	35	35
Class Test (best two)	10	10
Log Book	10	10
Practical record book	-	10
Attendance	5	5
Professionalism	-	10
ATCOM	10	-
Total	100	100



SRI GURU RAM DAS UNIVERSITY OF HEALTH SCIENCES, SRI AMRITSAR

Maximum Marks: 100

MBBS 2nd Professional Examination
Subject- Pharmacology (New Scheme)

Time: 3 Hours

Paper-A

- Note:**
1. Attempt all questions. Illustrate your answer with suitable diagrams where applicable.
 2. Question No. 1 (Multiple Choice Questions (A-J)) is to be attempted on OMR Sheet in first 15 minutes of the start of exam.
 3. Question No. 2-6 are to be attempted on the main answer book. No supplementary sheet shall be provided.
 4. Students must write QP code in the space provided on OMR sheet as well as on the title page of the main answer book.

QP Code: MBB203A

1. Multiple Choice Questions (MCQs):

[10X1=10]

- A. Which of the following sympathomimetics acts indirectly?
 - a. Epinephrine
 - b. Norepinephrine
 - c. Ephedrine
 - d. Methoxamine
- B. Which of the following effects is related to direct beta1-adrenoreceptor stimulation?
 - a. Bronchodilation
 - b. Vasodilatation
 - c. Tachycardia
 - d. Bradycardia
- C. Beta adrenoreceptor subtypes is contained in all of the following tissues EXCEPT:
 - a. Bronchial muscles
 - b. Heart
 - c. Pupillary dilator muscle
 - d. Fat cells
- D. Which of the following statement is not correct?
 - a. Alfa agonists cause miosis
 - b. Alfa agonists cause mydriasis
 - c. Beta antagonists decrease the production of aqueous humor
 - d. Alfa agonists increase the outflow of aqueous humor from the eye
- E. Which of the following drugs causes bronchodilation without significant cardiac stimulation?
 - a. Isoprenaline
 - b. Terbutaline
 - c. Xylometazoline
 - d. Methoxamine
- F. Alfa-receptor stimulation includes all of the following effects EXCEPT:
 - a. Relaxation of gastrointestinal smooth muscle
 - b. Contraction of bladder base, uterus and prostate
 - c. Stimulation of insulin secretion
 - d. Stimulation of platelet aggregation

- G. Hyperglycemia induced by epinephrine is due to:
- Gluconeogenesis (beta2)
 - Inhibition of insulin secretion (alfa)
 - Stimulation of glycogenolysis (beta2)
 - All of the above
- H. Which of the following statements is not correct?
- Epinephrine acts on both alfa- and beta-receptors
 - Norepinephrine has a predominantly beta action
 - Methoxamine has a predominantly alfa action
 - Isoprenaline has a predominantly beta action
- I. Epinephrine produces all of the following effects EXCEPT:
- Positive inotropic and chronotropic actions on the heart (beta1receptor)
 - Increase peripheral resistance (alfa receptor)
 - Predominance of alfa effects at low concentration
 - Skeletal muscle blood vessel dilatation (beta2receptor)
- J. Characteristics of methoxamine include all of the following EXCEPT:
- It is a direct-acting alfa1-receptor agonist
 - It increases heart rate, contractility and cardiac output
 - It causes reflex bradycardia
 - It increases total peripheral resistance

2. Write M.O.A., therapeutic uses and adverse effects of benzodiazepines. [10]

3. A 70-year-old man is seen in follow-up at your office after he has been hospitalized for a myocardial infarction (MI). He underwent successful angioplasty and is currently asymptomatic. In the hospital, his blood pressure was consistently elevated. The patient's discharge medications include an ACE inhibitor, a statin, aspirin, and metoprolol. [2+6+2=10]
- What type of agent metoprolol is?
 - What are the therapeutic uses and adverse effects of metoprolol?
 - What are its contra indications?

4. Write short notes on: [8 x 5=40]

- Therapeutic drug monitoring
- Proton pump inhibitors
- Preanesthetic medication
- Extrapyramidal symptoms of antipsychotic drugs and its management.
- Nasal decongestants.
- Directly acting muscle relaxants.
- Therapeutic uses and adverse effects of atropine and its analogues.
- Therapeutic uses and adverse effects of 2nd generation antihistaminics.

5. Explain Why: [3X5=15]

- Neostigmine is preferred over physostigmine in myasthenia gravis.
- Pilocarpine is used in Glaucoma.
- Adrenaline is used as lifesaving drug.

6. Describe Briefly: [3x5=15]

- Plasma protein binding of drugs and its clinical significance
- D-penicillamine
- Topical route of application, its advantages and disadvantages



SRI GURU RAM DAS UNIVERSITY OF HEALTH SCIENCES, SRI AMRITSAR

Maximum Marks : 100

MBBS 2nd Professional Examination
Subject- Pharmacology (New Scheme)

Time : 3 Hours

Paper-B

- Note:**
1. Attempt all questions. Illustrate your answer with suitable diagrams where applicable.
 2. Question No. 1 (Multiple Choice Questions (A-J)) is to be attempted on OMR Sheet in first 15 minutes of the start of exam.
 3. Question No. 2-6 are to be attempted on the main answer book. No supplementary sheet shall be provided.
 4. Students must write QP code in the space provided on OMR sheet as well as on the title page of the main answer book.

QP Code: MBB203A

1. Multiple Choice Questions (MCQs) :

[10x1=10]

- A. A 54-year-old woman who has not seen a physician for several years presents with a previously undiagnosed thyroid cancer and thyrotoxicosis. One drug that is administered as part of early management, and may be lifesaving, is propranolol. Which of the following best summarizes the objective for administering this drug?
 - a. Block parenchymal cell receptors for thyroid hormones
 - b. Block thyroid hormone release by a direct effect on the gland
 - c. Inhibit thyroid hormone synthesis
 - d. Lessen dangerous cardiovascular signs and symptoms of thyroid hormone excess
- B. A woman deemed at high risk of postmenopausal osteoporosis is started on alendronate. What is this representative bisphosphonate's main mechanism of action?
 - a. Contains lots of calcium, which supplements dietary calcium intake
 - b. Directly forms hydroxyapatite crystals in bone
 - c. Provides supplemental phosphate, which indirectly elevates plasma Ca²⁺
 - d. Reduces the number and activity of osteoclasts in bone
- C. Some patients who are taking high doses of a bisphosphonate for Paget disease of the bone develop an endocrine-metabolic disorder. What disorder would that be?
 - a. Cushing disease (cushingoid symptoms)
 - b. Diabetes insipidus
 - c. Hyperparathyroidism
 - d. Diabetes mellitus
- D. Metyrapone is useful in testing hyper-or hypo-function of certain endocrine conditions or biological processes those glands normally control. When we administer this drug for diagnostic purposes, which structure or function are we most likely assessing?
 - a. Pituitary-adrenal axis
 - b. α cells of pancreatic islets
 - c. β cells of pancreatic islets
 - d. Leydig cells of the testes
- E. Which of the following statements is true for therapy with insulin glargine?
 - a. Pharmacokinetically, there is no peak activity, and the activity lasts about 24 hours.
 - b. It is primarily used to control prandial hyperglycemia.
 - c. It should not be combined with any other insulin.
 - d. It is now used preferentially in Type 1 diabetics who are pregnant

- F. Estrogen replacement therapy in menopausal women:
- Restores bone loss accompanying osteoporosis.
 - May induce hot flashes.
 - May cause atrophic vaginitis.
 - Is most effective if instituted at the first signs of menopause
- G. A 23-year-old woman has failed to become pregnant after 2 years of unprotected intercourse. Which of the following would be effective in treating infertility due anovulatory cycles?
- A combination of an estrogen and progestin.
 - Estrogen alone.
 - Clomiphene.
 - Raloxifene
- H. Osteoporosis is a major adverse effect caused by the glucocorticoids. It is due to their ability to:
- Increase the excretion of calcium.
 - Inhibit absorption of calcium.
 - Stimulate the HPA axis.
 - Decrease production of prostaglandins.
- I. A 60-year-old man on long-term therapy with a drug develops hypertension, hyperglycemia, and decreased bone density. Blood tests indicate anemia. Some of his stool samples initially were positive for occult blood, and then the stool developed a “coffee-grounds” appearance. Which drug is most likely responsible for the patient’s symptoms?
- Hydrochlorothiazide
 - Metformin
 - Pamidronate
 - Prednisone
- J. A woman with atrial fibrillation is being treated long-term with amiodarone (and warfarin). This antiarrhythmic can cause biochemical changes and clinical signs and symptoms that resemble those associated with which endocrine disease/disorder?
- Cushing syndrome
 - Hypothyroidism
 - Diabetes insipidus
 - Diabetes mellitus
2. Classify anti anginal drugs. Mention important precautions and clinical uses of Calcium channel blockers. [10]
3. A 12-year-old female with an unremarkable past medical history (PMH) presents with fever, sore throat, and a tender cervical lymphadenopathy. She is diagnosed with streptococcal Group A pharyngitis and is treated with IM penicillin. Within a few minutes of the injection, the patient is dyspneic, tachycardic, and hypotensive, and is noted to have wheezing on examination. She also complains of dysphagia. [3+4+3=10]
- What is the mode of action of penicillin
 - What are therapeutic uses and adverse effects of Penicillin
 - What is the line of management for this patient
4. Write short notes on: [8X5=50]
- Amiodarone.
 - Potassium sparing diuretics
 - Therapeutic uses and adverse effects of chloramphenicol
 - Therapeutic uses and adverse effects of Fluoroquinolones
 - GnRH analogues
 - Newer insulins (Insulin analogues)
 - Bisphosphonates
 - Vitamin A

5. Explain Why?

[3X5=15]

- a. Sulbactam is combined with ampicillin
- b. Nifedipine can paradoxically aggravate angina in some patients
- c. Multidrug therapy is recommended in tuberculosis

6. Describe Briefly:

[3x5=15]

- a. Drug management of Pernicious anemia
- b. Immunomodulators in cancer
- c. Therapeutic uses and adverse effects of clonidine