

03/26

**The West Bengal University of Health Sciences**  
**MBBS 2nd Professional Examination (New Regulation) January-February 2026**

**Subject: Pharmacology**  
**Paper: I**

**Full Marks: 100**  
**Time: 3 hours**

*Attempt all questions. The figures in the margin indicate full marks.*

1. a) A 72 year old ex-smoker presents with exertional dyspnea and productive cough. Spirometry is suggestive of small airways obstruction. 5+5+5
- i. Enumerate the drugs used for pharmacotherapy of stable COPD.
  - ii. State the non-pharmacological therapy in COPD.
  - iii. What will be the management of acute exacerbation of COPD?
- b) A 65 year old man with a history of long-standing hypertension and type 2 diabetes presents with complaints of increasing shortness of breath, swelling of feet, fatigue and reduced exercise tolerance over the past few weeks. On examination, he has bilateral pedal edema, raised jugular venous pressure (JVP), bilateral basal crepitations and hepatomegaly. His ejection fraction is found to be 35% on echocardiography. He is diagnosed with congestive heart failure (CHF). The attending physician starts him on loop diuretics, ACE inhibitors, beta-blockers and aldosterone antagonists. 3+3+3+3+3
- i. Classify diuretics with examples.
  - ii. Explain the mechanism of action of loop diuretics with a suitable diagram.
  - iii. Justify the use of diuretics in hypertension and heart failure.
  - iv. Explain the role of beta blockers in congestive heart failure.
  - v. Compare the dyselectrolytemia caused by different classes of diuretics.
2. Answer the following:
- a. Define apparent volume of distribution. What are the factors governing volume of distribution of a drug? State the clinical significance of volume of distribution of a drug. What is redistribution of drug? Give one example. 1+4+2+2+1
  - b. Enumerate the drugs used in patients of Glaucoma. Write down the mechanism of action and adverse drug reaction of one antiglaucoma drug of your choice. 4+3+3
  - c. A 27 year old pregnant lady presents with Hb 7.2gm/dl and microcytic hypochromic anemia. Mention the drugs with their dosage for treatment of this patient. What are the adverse effects which might be faced by her while taking the medications? How would you minimize the side effects? 6+2+2
3. Write short notes on: 2x5
- a. Counseling of a patient who is being prescribed a drug with dependence liability.
  - b. Phases of clinical trials.
4. Explain the following statements: 5x4
- a. Prostaglandin analogues are used in management of wide angle glaucoma.
  - b. Fat soluble vitamins must be described judiciously.
  - c. Noradrenaline and not adrenaline is preferred in hypovolemic shock.
  - d. Sildenafil should not be used with nitrates.
  - e. Beta blockers should be judiciously in treatment of heart failure.

5. Choose the correct option for each of the following:

10x1

i. Filgrastim is a:

- a. T-cell stimulating factor   b. GnRH analogue   c. Recombinant G-CSF   d. Recombinant GM-CSF

ii. "Beneficence" in the context of medical ethics refer to:

- a. The obligation to avoid causing harm to patients.  
b. The principle of acting in the best interests of the patient.  
c. The right of patients to make their own decisions.  
d. The fair and equitable distribution of health care resources.

iii. Therapeutic index is an assessment of:

- a. Potency of a drug   b. Onset of action   c. Duration of action   d. Margin of safety

iv. A partial agonist can antagonize the effects of a full agonist because it has:

- a. High affinity but low intrinsic activity   b. Low affinity but high intrinsic activity.  
c. No affinity and low intrinsic activity   d. High affinity but no intrinsic activity.

v. A sympathomimetic amine that acts almost exclusively by releasing noradrenaline from the nerve endings is:

- a. Ephedrine   b. Dopamine   c. Isoprenaline   d. Tyramine

vi. A 30 year old pregnant woman in second trimester came to OPD for routine check-up. Her blood pressure was found to be increased. What is the drug of choice for her hypertension?

- a. Enalapril   b. Methyldopa   c. Hydralazine   d. Chlorthalidone

vii. High plasma protein binding of a drug result in:

- a. Increase in  $V_d$    b. Decrease in glomerular filtration  
c. Increase in tubular secretion   d. Decreased drug interactions

viii. Drug that can be used for producing alkalinization of urine is:

- a. Hydrochlorothiazide   b. Furosemide   c. Acetazolamide   d. Spironolactone

ix. Which of the following drugs is a non-selective beta blocker that also has alpha-1 blocking activity?

- a. Propranolol   b. Atenolol   c. Labetalol   d. Metoprolol

x. Which of the following Acts governs the import, manufacture, distribution and sale of drugs in India?

- a. Narcotics drugs and Psychotropic Substances Act, 1985   b. Drugs and cosmetics Act, 1940  
c. Indian medical council Act, 1956   d. Pharmacy Act, 1948