**QP Code: 123004** **Reg. No.:……**

# First Professional BHMS Degree Regular/Supplementary Examinations March 2025

## Human Physiology and Biochemistry (Hom UG - PB) – Paper 1

# (2022 Scheme)

**Time: 3 Hours** **Total marks:100**

- ***Answer all questions to the point neatly and legibly • Do not leave any blank pages between answers • Indicate the question number correctly for the answer in the margin space***
- ***Answer all parts of a single question together • Leave sufficient space between answers***
- ***Draw table/diagrams/flow charts wherever necessary***

1. **Multiple Choice Questions** **(10x1=10)**

**The Answers to MCQ questions (Q.No. i to Q.No. x) shall be written continuously on the first two writing sheets (ie Page No. 3 & 4) only**

i. In cell membrane, all of the following are true except:
   a) Lipids are regularly arranged b) Lipids are symmetrical
   c) proteins are displaced laterally d) None

ii. Water moves from the capillary into the interstitial space mainly by:
   a) Osmosis b) Active transport
   c) Filtration d) Solvent drag.

iii. A part of action potential that coincides with absolute refractory period is:
   a) Depolarization b) Hyperpolarization
   c) Depolarization and 1/3 of repolarization d) After-depolarization.

iv. Decrease in colloidal osmotic pressure leads to:
   a) Dehydration b) Edema
   c) No change in the body fluid d) Acidosis

v. Normocytic, normochromic anemia is seen in.
   a) Chronic infection b) Sickle cell anemia
   c) Iron deficiency anemia d) Folic acid deficiency

vi. During cardiac cycle, aortic valve opens at:
   a) Beginning of systole b) End of diastole
   c) End of isovolumetric contraction d) End of diastasis

vii. Total lung capacity depends on:
   a) Residual volume b) Closing volume
   c) Lung compliance d) Size of airway

viii. Principal site of bicarbonate reabsorption:
   a) Distal convoluted tubule b) Proximal convoluted tubule
   c) Cortical collecting duct d) Medullary collecting duct

ix. Which glands discharge an oily secretion into hair follicles.
   a) Apocrine sweat b) Merocrine sweat
   c) Mammary d) Sebaceous

x. Group A nerve fibers are most susceptible to:
   a) Pressure b) Hypoxia
   c) Temperature d) Local anesthetics

**Short Answer Questions** **(8x5=40)**

2. Explain Active transport mechanism across cell membrane.
3. Explain nerve action potential.
4. Classify the ABO blood group system.
5. Explain the clinical importance of murmurs and triple heart sound.
6. Explain the mechanism of inspiration.
7. Describe the functions of kidney.
8. Describe layers of skin with their functions.
9. Explain nervous and hormonal control of smooth muscle contraction.

**Long Answer Questions** **(5x10=50)**

10. A 10 years old girl child complains of fatigability and lethargy for the last 6 months. Physical examination revealed pallor. Routine blood investigation showed Hb – 7 gm% and peripheral smear revealed microcytic hypochromic RBCs.
    Answer the following:
    a) Identify the clinical condition and what is the cause.
    b) Define anemia.
    c) Classify anemia based on morphology.
    d) Enumerate stages of erythropoiesis and discuss the factors regulating them.
    (1+1+3+5)
11. Classify different type of WBCs. Discuss the function of WBCs as per their classification. (2+8)
12. Explain different heart sounds with their measurement technique.
13. Discuss the nervous and chemical regulation of respiration. (5+5)
14. Describe the regulation of Glomerular filtration rate.

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