QP Code: 123004 **Reg. No.:……**

First Professional BHMS Degree Regular Examinations July 2024

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. The cell organelle that is referred to as the digestive system of the cell
   a) Peroxisome
   b) Proteasome
   c) Lysosome
   d) Golgi apparatus

ii. All are positive feedback mechanisms of homeostasis except
   a) Milk ejection
   b) Thyroxine secretion
   c) Hemostasis
   d) Parturition

iii. Ultrafiltration occurs in
   a) Cell membrane
   b) Respiratory membrane
   c) Epithelial membrane
   d) Renal filtration membrane

iv. Which is responsible for colloidal osmotic pressure
   a) Carbohydrates
   b) Proteins
   c) Lipids
   d) Vitamins

v. The most common antigen present in the human Rh system of blood groups is
   a) A antigen
   b) B antigen
   c) C antigen
   d) D antigen

vi. The Sinoatrial node generated electrical impulses reach the left atrium through
   a) Anterior internodal fibers
   b) Bachmann's bundle
   c) Middle internodal fibers
   d) Posterior internodal fibers

vii. All are layers of respiratory membrane except
   a) Alveolar epithelium
   b) Interstitial tissue
   c) Capillary endothelium
   d) Surfactant

(PTO)

viii. Which of the following is NOT formed by the kidney
   a) Erythropoietin
   b) Renin
   c) Calcitriol
   d) Aldosterone

ix. A rise in 1°degree body temperature causes how many pulse rate increases
   a) 10
   b) 20
   c) 15
   d) 5

x. During skeletal muscle contraction which band of the sarcomere remains at rest
   a) A band
   b) I band
   c) M band
   d) Z band

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

2. What is endocytosis. What are the types of endocytosis with suitable examples.
3. Explain the differences between action potential and graded potential.
4. Draw the different types of White blood cells and briefly write their functions.
5. Define blood pressure. Explain the renal regulation of blood pressure. (1+4)
6. Define hypoxia and classify the types of hypoxia. (1+4)
7. Describe the renal clearance test for glomerular function.
8. Name the layers of Skin and write any five functions of it.
9. Enumerate the properties of skeletal muscles and explain any two in brief.

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

10. Name the Plasma proteins. Give three normal values and site of synthesis. Explain three functions in detail. (1.5+1.5+2+5)
11. A 30 year old female complains of tiredness, weakness, palpitation and chest discomfort on exertion. She gives a history of heavy menstrual bleeding for the past six months. On examination, there was severe pallor, heart rate 100/mm and there was a systolic murmur on auscultation. ECG was normal. Investigation showed Hemoglobin – 6gm%, PCV – 35%, MCV – 76m^3m, RBC count – 3 million/mm^3 of blood, MCH - 25pg, MCHC – 17%
    a) What is the probable diagnosis
    b) Define erythropoiesis
    c) Explain the stages of erythropoiesis
    d) Add a note on the factors affecting erythropoiesis (1+1+5+3)
12. Explain the Electrocardiogram and its waves and leads in detail.
13. How is Carbon dioxide transported in the blood. Add a note on the dissociation curve.
14. Enumerate the steps of urine formation and explain the process of glomerular filtration in detail. (3+7)

****