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2023

B.Pharm. 1<sup>st</sup> Semester End-Term Examination

HUMAN ANATOMY AND PHYSIOLOGY - I

Full Marks - 75

Time - Three hours

The figures in the margin indicate full marks for the questions.

1. Multiple choice questions (MCQ/ Answer *all* questions) : (20 × 1 = 20)
- (i) Which of the following organelle/s serves as a primary packaging area for molecules that will be distributed throughout the cell?
- (a) Golgi apparatus (b) Mitochondria  
(c) Nucleus (d) Both (a) and (c)
- (ii) Hip joint is a type of \_\_\_\_\_.
- (a) Gliding joint (b) Hinge joint  
(c) Pivot joint (d) Ball and socket joint
- (iii) Which of the following is known as Cranial nerve-I?
- (a) Optic (b) Olfactory  
(c) Facial (d) Vagus
- (iv) Lymphatic system consists of \_\_\_\_\_.
- (a) Lymph vessels (b) Spleen  
(c) Thymus gland (d) All of the above
- (v) \_\_\_\_\_ does not perform the function of phagocytosis.
- (a) Neutrophils (b) Basophils  
(c) Monocytes (d) Eosinophils

[Turn over

- (vi) In the middle ear, stirrup-shaped bone is called as \_\_\_\_\_.
- (a) Stapes (b) Malleus  
(c) Incus (d) Temporal bone
- (vii) The muscle which rotates the arm and the palm upwards is
- (a) Supinator (b) Pronator  
(c) Flexor (d) Rotator
- (viii) Cardiac output is about \_\_\_\_\_ L of blood.
- (a) 3 (b) 5  
(c) 15 (d) 50
- (ix) Gustatory cells are found in the \_\_\_\_\_.
- (a) Nose (b) Tongue  
(c) Ear (d) Eyes
- (x) A study dealing with the explanation of how an organ works is known as
- (a) Anatomy (b) Cytology  
(c) Teleology (d) Physiology
- (xi) Which structure within the cell produces ATP?
- (a) The mitochondria (b) The nucleus  
(c) Peripheral proteins (d) The endoplasmic reticulum
- (xii) What substance is produced by the first step in the blood clotting (coagulation) process?
- (a) Prothrombinase (b) Factor X  
(c) Prothrombin (d) Thrombin
- (xiii) The largest bone in the human body is
- (a) Femur (b) Tibia  
(c) Skull (d) Spine
- (xiv) Where does the stimulation of muscle fibres by a motor neuron take place?
- (a) Myofibril (b) Neuromuscular junction  
(c) Transverse tubules (d) Sarcoplasmic reticulum



(xv) 'Hemopoiesis' refers to \_\_\_\_\_.

- (a) The creation of RBCs in a hypotonic solution
- (b) The process of blood clotting
- (c) The process of blood cell formation in the bone marrow
- (d) An excessively large proportion of RBCs to plasma

(xvi) Which of the following is not the function of skin?

- (a) Calcium production
- (b) Excretion of wastes
- (c) Protection
- (d) Temperature regulation

(xvii) Which of the following is not a component of the cell plasma membrane?

- (a) Cholesterol
- (b) Microfilaments
- (c) Proteins
- (d) Phospholipids

(xviii) RBC lives for \_\_\_\_\_ days.

- (a) 56
- (b) 72
- (c) 102
- (d) 120

(xix) Which of the following bone in humans is called the beauty bone?

- (a) Maxilla
- (b) Fibula
- (c) Clavicle
- (d) Sternum

(xx) Bones are connected to each other by

- (a) Cartilage
- (b) Ligaments
- (c) Collagen
- (d) Tendons

2. Short answers (Answer any *seven*): (7 × 5 = 35)

- (a) Define intracellular signaling. Discuss the different forms of intracellular signaling.
- (b) Name the bones of the cranium. Differentiate between axial and appendicular skeleton.
- (c) What is ECG? Briefly explain each component of ECG.
- (d) Write a note on the physiology of skeletal muscle contraction.
- (e) Classify the peripheral nervous system. Differentiate between the sympathetic and parasympathetic nervous system.
- (f) Define and classify joints. Write a note on synovial joints with examples.

- (g) Define cell junction. Write a note on different types of cell junctions.
- (h) Draw a neat labelled diagram of the cell and mention one function of each organelle.
- (i) Define and elaborate on blood grouping. Write its significance in blood transfusion.

3. Long Answers (Answer any two) :

(2 × 10 = 20)

- (a) (i) Explain the conducting system of the heart with a neat labelled diagram. (5)
- (ii) Discuss the anatomy of the ear with a suitable diagram. Mention two important functions of the ear. (5)
- (b) (i) Write the composition and functions of blood. (5)
- (ii) Explain the lymphatic circulation and functions of the lymphatic system. (5)
- (c) Classify tissues with examples. Write the structure, location and functions of epithelial and connective tissue. (4 + 3 + 3)