



## BRAINWARE UNIVERSITY

Term End Examination 2024-2025

Programme – B.Sc.(PA)-2022/B.Sc.(PA)-2023/B.Sc.(PA)-2024

Course Name – Human Physiology- Part I

Course Code - BPAC102

( Semester I )

Full Marks : 60

Time : 2:30 Hours

[The figure in the margin indicates full marks. Candidates are required to give their answers in their own words as far as practicable.]

### Group-A

(Multiple Choice Type Question)

1 x 15=15

1. Choose the correct alternative from the following :

- (i) Identify the statement that best describes passive transport?
  - a) Movement of molecules against their concentration gradient using energy.
  - b) Movement of molecules from a region of higher concentration to a region of lower concentration without energy input.
  - c) Involves the use of ATP to move molecules across the membrane.
  - d) Occurs only in plant cells.
- (ii) Recognize the nerve fibre in which action potential move fast?
  - a) Unmyelinated nerve fibre.
  - b) Myelinated nerve fibre.
  - c) Demyelinated nerve fibre.
  - d) None of these.
- (iii) Identify the condition under which active transport occurs:
  - a) When substances move down their concentration gradient
  - b) When the cell uses ATP to move substances against their concentration gradient
  - c) When molecules move freely without the need for membrane proteins
  - d) When water moves across the membrane through aquaporins
- (iv) Select the process of hemostasis.
  - a) Process of stoppage of blood loss from injury.
  - b) Process of blood cell formation.
  - c) Removal of injury.
  - d) Process of blood coagulation.
- (v) After Hyperpolarization summerize the membrane potential inside the cell?
  - a) -70 mV
  - b) -80 mV
  - c) +40 mV
  - d) -55 mV
- (vi) Identify the function of basal nuclei?
  - a) Decision making ability.
  - b) Language processing.
  - c) Touch sensation.
  - d) Processing sensory information.
- (vii) Indicate the function of VENTRAL SPINOCEREBELLAR TRACT.
  - a) Tactile sensation
  - b) subconscious kinesthetic sensation

- c) Pain
- (viii) Select Babinski reflex is-
- a) after the one of the toe of the foot has been firmly stroked, big toe then moves upward or toward the top surface of the foot
- b) after the sole of the foot has been firmly stroked, all the toes then move upward or toward the top surface of the foot
- c) after the big toe of the foot has been firmly stroked, all the toes then move upward or toward the top surface of the foot
- d) after the sole of the foot has been firmly stroked, big toe then moves upward or toward the top surface of the foot
- (ix) Indicate the location of Hypothalamus and Thalamus.
- a) Cerebellum
- b) Cerebrum
- c) Diencephalon
- d) Limbic system
- (x) Illustrate the functions of smooth muscles, glands, cardiac muscle are regulated by-
- a) Somatic nervous system
- b) Autonomic nervous system
- c) Central nervous system
- d) Sympathetic nervous system
- (xi) Select the name of the ion which is essential for muscle contraction.
- a) Na<sup>+</sup>
- b) Ca<sup>2+</sup>
- c) Cl<sup>-</sup>
- d) K<sup>+</sup>
- (xii) Predict which leucocytes release heparin and histamine in blood.
- a) Neutrophil
- b) Basophil
- c) Eosinophil
- d) Monocytes
- (xiii) Name the largest artery in the human body, carrying oxygenated blood away from the heart.
- a) Pulmonary artery
- b) Coronary artery
- c) Arteriole
- d) Aorta
- (xiv) Select the correct sequence of phases in a ventricular cardiac action potential:
- a) Depolarization, Plateau, Repolarization, Resting
- b) Resting, Depolarization, Plateau, Repolarization
- c) Depolarization, Plateau, Resting, Repolarization
- d) Repolarization, Depolarization, Plateau, Resting
- (xv) Select the ion responsible for repolarization in the cardiac action potential:
- a) Sodium (Na<sup>+</sup>)
- b) Potassium (K<sup>+</sup>)
- c) Calcium (Ca<sup>2+</sup>)
- d) Chloride (Cl<sup>-</sup>)

#### Group-B

(Short Answer Type Questions)

3 x 5=15

2. Define Extracellular Fluid (ECF). (3)
3. State the steps involved in performing a lumbar puncture. (3)
4. Name the layers of Cerebellum. (3)
5. Compare cardiac systole and diastole. (3)
6. Justify the importance of platelets in wound healing. (3)

OR

- Validate the significance of plasma proteins in maintaining osmotic balance. (3)

#### Group-C

(Long Answer Type Questions)

5 x 6=30

7. Distinguish between the types of hypoxia. (5)
8. Illustrate the cardiac cycle with diagram. (5)
9. Define Homeostasis with an example. (5)
10. Enumerate ionic basis of nerve impulse. (5)

11. Explain the factors controlling blood pressure. (5)
12. Explain the Importance of Reflex Testing in Neurological Examinations. (5)
- OR**
- Classify the lobes of the cerebellum and correlate their functions. (5)

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