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**BRAINWARE UNIVERSITY**

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398, Ramkrishnapur Road, Barasat  
Kolkata, West Bengal-700125

**Term End Examination 2025-2026****Programme – B.Sc.(PA)-2023/B.Sc.(PA)-2024/B.Sc.(PA)-2025****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) Recognize Action potential?

- a) +20 to +40 mv.  
c) 100 mv.

- b) 80 mv.  
d) 0 mv.

(ii) Match Extracellular fluid percentage.

- a) 23% of total body water.  
c) 25% of total body water.

- b) 33% of total body water.  
d) 67% of total body water.

(iii) Identify the type of granulocyte?

- a) Lymphocyte  
c) monocyte

- b) basophil  
d) mast cell

(iv) Identify the correct statement regarding blood's regulatory functions:

- a) Blood does not play a role in hormone distribution.  
c) Blood only transports oxygen, not carbon dioxide.

- b) The blood maintains osmotic pressure by distributing proteins and electrolytes.  
d) Blood clotting does not contribute to protection.

(v) The brain stem is composed of \_\_\_\_\_?

- a) Spinal cord  
c) Medulla pons and middle brain tissue

- b) Axon and vertebra  
d) Cerebellum and Medulla

(vi) Indicate the connection of two hemispheres of the brain?

- a) Pons  
c) Corpus callosum

- b) Pia matter  
d) Diencephalon

(vii) Select the source of thromboplastin.

- a) RBC  
c) Leucocytes

- b) Blood plasma  
d) Clumped platelets and damaged tissues

(viii) Write down the instrument used for measuring blood pressure is known as

- a) ECG

- b) EEG

- c) Sphygmomanometer  
 (ix) Name the transport mechanism that requires energy to move substances against their concentration gradient  
 a) Simple Diffusion  
 c) Active Transport  
 (x) Select the ion with a high concentration in extracellular fluid  
 a) Calcium (Ca<sup>2+</sup>)  
 c) Chloride (Cl<sup>-</sup>)  
 (xi) Write the source of the electrical activity of the heart.  
 a) endocardium  
 c) epicardium  
 (xii) Write the duration of a normal cardiac cycle.  
 a) 0.4 s  
 c) 1.2 s  
 (xiii) Identify the event that is responsible for the 'QRS complex' of ECG.  
 a) Atrial depolarization.  
 c) Atrial repolarization.  
 (xiv) Tell the relationship of heart rate (HR) and stroke volume (SV) with cardiac output (CO).  
 a) Increased HR increases CO.  
 c) CO = HR X SV  
 (xv) Select the primary neurotransmitter deficiency in Parkinson's disease:  
 a) Acetylcholine  
 c) Glutamate

- d) Stethoscope  
 b) Facilitated Diffusion  
 d) Osmosis  
 b) Magnesium (Mg<sup>2+</sup>)  
 d) Potassium (K<sup>+</sup>)  
 b) pericardium  
 d) myocardium  
 b) 0.8 s  
 d) 1.6 s  
 b) Ventricular repolarization.  
 d) Ventricular depolarization.  
 b) Decreased SV decreases CO.  
 d) All of these.  
 b) Serotonin  
 d) Dopamine

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#### Group-B

(Short Answer Type Questions)

3 x 5=15

2. List the sub-compartments of ECF. (3)
3. Write a short note on isovolumetric contraction in cardiac cycle. (3)
4. Write the reasons of heart sounds. (3)
5. Summarize its primary functions within the central nervous system (CNS). (3)
6. Compare granulocyte with agranulocyte. (3)

OR

- Analyze the functions of hemoglobin. (3)

#### Group-C

(Long Answer Type Questions)

5 x 6=30

7. Explain the formation and circulation of CSF. (5)
8. Describe the waves of ECG with suitable diagram. (5)
9. Correlate the different parts of the cerebral cortex with functions. (5)
10. Explain the mechanism of blood clotting. (5)
11. Describe the process of Action potential mentioning different phases. (5)
12. Analyze the ECG graph during normal cardiac activity. (5)

OR

- Explain the cardiac conduction of action potential through internodal tissues. (5)

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