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

## BRAINWARE UNIVERSITY

Term End Examination 2024-2025

Programme – B.Sc.(CCT)-2021/B.Sc.(CCT)-2022/B.Sc.(OTT)-2022/B.Sc.  
(OTT)-2023/B.Sc.(CCT)-2023/B.Sc.(CCT)-2024/B.Sc.(OTT)-2024

Course Name – Human Physiology

Course Code - BCCT102/BCCTC102/BOTTC102

( 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) Identify which of the following cells produces HCl.

- |                |                  |
|----------------|------------------|
| a) Beta cells  | b) Oxyntic cells |
| c) Chief cells | d) Alpha cells   |

(iii) Define lipolysis?

- |                                  |                               |
|----------------------------------|-------------------------------|
| a) Hydrolysis of triacylglycerol | b) Formation of lipids        |
| c) Breakdown of ketone bodies    | d) Formation of ketone bodies |

(iv) Out of the following, identify which is a major secretory layer of the GI tract?

- |               |               |
|---------------|---------------|
| a) Mucosa     | b) Submucosa, |
| c) Muscularis | d) Serosa     |

(v) Identify the function of the valves present inside the heart.

- |                                 |   |
|---------------------------------|---|
| a) They control blood pressure. | b) They prevent backflow of blood.      |
| c) They regulate heart rate.    | d) They control myocardial contraction. |

(vi) Select the correct option: A decrease in pH \_\_\_\_\_ oxygen binding to hemoglobin?

- |                        |                     |
|------------------------|---------------------|
| a) promotes            | b) decreases        |
| c) offers no effect on | d) is essential for |

(vii) Identify the reason of hypoxic hypoxia.

- |                    |                              |
|--------------------|------------------------------|
| a) Low blood flow. | b) Low oxygen concentration. |
|--------------------|------------------------------|

- c) Low oxygen utilization. d) Low hemoglobin concentration.
- (viii) Select the time of the day when melatonin secretion is maximum:
- a) Early morning. b) Afternoon.
- c) Evening. d) Night.
- (ix) Name the condition in which pancreas do not produce enough insulin, leading to high blood glucose.
- a) Hypothyroidism b) Hypoglycemia
- c) Diabetes mellitus d) Cushing's syndrome
- (x) Name the hormone which is secreted just after a meal.
- a) Glucagon b) Thyroxin
- c) Prolactin d) Insulin
- (xi) 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
- (xii) Na- K-ATPase pump is visualized in which phase of action potential?
- a) depolarization phase b) action potential phase
- c) repolarization phase d) hyperpolarization phase
- (xiii) Select the process of hemostasis.
- a) process of blood coagulation b) Process of blood cell formation
- c) removal of injury d) None of these
- (xiv) Identify what is true about Cerebrospinal fluid.
- a) is formed in the arachnoid granulations. b) Provides the brain with most of its nutrition.
- c) Protects the brain from injury when the head is moved. d) Has a lower pressure than that in the cerebral venous sinuses.
- (xv) The brain stem is composed of \_\_\_\_\_
- a) Spinal cord b) Axon and vertebra
- c) Medulla pons and middle brain tissue d) Cerebellum and Medulla

### Group-B

(Short Answer Type Questions)

3 x 5=15

2. Describe the structure and function of the villi and microvilli in the small intestine. (3)
3. Write the role of acetylcholine esterase in synaptic transmission. (3)
4. List the types of plasma proteins. (3)
5. Write the factors responsible for gaseous exchange at the alveolar membrane. (3)
6. Illustrate the function of synapses in impulse transportation through nerves. (3)

OR

Illustrate the Ascending Sensory Pathway with the help of a flowchart. (3)

### Group-C

(Long Answer Type Questions)

5 x 6=30

7. Illustrate the factors that affect cardiac output. (5)
8. Discuss feedback mechanism with proper examples. (5)
9. List the factors affecting erythropoiesis. (5)
10. Reorganize the functions motor areas of cerebral cortex. (5)
11. Discuss the roles of estrogen and progesterone in preparing the uterine lining, promoting ovulation, and maintaining pregnancy. (5)
12. Write about the function of spinal nerves. (5)

OR

Write the pathway through which cerebrospinal fluid circulates within the CNS. (5)

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