



## BRAINWARE UNIVERSITY

Term End Examination 2023-2024  
Programme – B.Sc.(FND)-Hons-2023  
Course Name – Human Physiology I  
Course Code - BFD10103  
( 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) What is the primary function of the renal system?
- a) Digestion  
b) Respiration  
c) Filtration and waste removal  
d) Muscle contraction
- (ii) What is the primary function of the juxtaglomerular apparatus?
- a) Blood clotting  
b) Filtration of urine  
c) Regulation of blood pressure and GFR  
d) Synthesis of insulin
- (iii) Which of the following is NOT a tubular function of the nephron?
- a) Reabsorption  
b) Secretion  
c) Filtration  
d) Excretion
- (iv) Which part of a tooth is responsible for sensing pain or sensitivity?
- a) Dentin  
b) Pulp  
c) Enamel  
d) Cementum
- (v) What is the primary function of the lungs in the respiratory system?
- a) To filter blood  
b) To exchange oxygen and carbon dioxide  
c) To produce red blood cells  
d) To regulate body temperature
- (vi) Which gas is primarily responsible for regulating breathing rate through chemical control mechanisms?
- a) Oxygen  
b) Nitrogen  
c) Carbon dioxide  
d) Hydrogen
- (vii) At higher altitudes, where the oxygen concentration is lower, one would typically expect to observe:
- a) Decreased breathing rate and increased oxygen saturation.  
b) Increased breathing rate and decreased oxygen saturation.  
c) Decreased breathing rate and decreased oxygen saturation.  
d) Increased breathing rate and increased oxygen saturation
- (viii) Name the individual who did coined the term 'cell' ?
- a) Robert Hooke  
b) Tatum  
c) Schwann  
d) De Bary

- (ix) What is the primary role of ion channels in cell membranes?  
 a) Transporting large molecules across the membrane  
 b) Facilitating the passive diffusion of ions  
 c) Regulating cell adhesion  
 d) Synthesizing ATP
- (x) What is the primary function of the heart?  
 a) Pumping blood  
 b) Digesting food  
 c) Filtering toxins  
 d) Storing nutrients
- (xi) What is the primary function of blood in the human body?  
 a) Transportation of nutrients  
 b) Production of antibodies  
 c) Digestion of food  
 d) Breathing
- (xii) What is the main function of hemoglobin in red blood cells?  
 a) To carry oxygen  
 b) To fight infections  
 c) To regulate blood pH  
 d) To transport nutrients
- (xiii) What is the purpose of the heart valves?  
 a) To regulate blood pressure  
 b) To prevent blood from flowing backward  
 c) To filter oxygen from the blood  
 d) To transport nutrients to the body
- (xiv) What is the purpose of an electrocardiogram (ECG or EKG)?  
 a) To measure blood pressure  
 b) To visualize the heart's chambers  
 c) To record electrical activity of the heart  
 d) To measure cardiac output
- (xv) In a mismatched blood transfusion, what can happen if the recipient receives the wrong blood type?  
 a) No adverse effects  
 b) Enhanced oxygen delivery  
 c) Hemolysis and severe reactions  
 d) Improved immunity

**Group-B**

(Short Answer Type Questions)

3 x 5=15

2. Discuss the "buffer system" present in the blood.

(3)

3. Define serum

(3)

4. Define Cell Junctions.

(3)

5. Write how sweat glands help regulate core body temperature, and why is sweating important

(3)

6.

(3)

Explain Sarcomere.

OR

Explain Sarco-tubular system.

(3)

**Group-C**

(Long Answer Type Questions)

5 x 6=30

7. Write down the functions of blood.

(5)

8. Describe the structural anatomy of the kidney, highlighting its major components and their functions.

(5)

9. Describe the different heart sounds and their clinical significance.

(5)

10.

(5)

Explain the structure & function of the "nucleus"

11. Explain the intricate relationship between the "kidney's pH regulation" and its impact on overall "acid-base balance". (5)

12. Classify "blood group". (5)

OR

Analyze the differences in the oxygen-carrying capacity of hemoglobin in the "arterial blood" compared to "venous blood". (5)

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