

2024

(FYUGP)

(5th Semester)

ZOOLOGY

(Minor)

Paper Code : ZOO/M5

(Animal Physiology—II : Life Sustaining System)

Full Marks : 75

Pass Marks : 40%

Time : 3 hours

(PART : B—DESCRIPTIVE)

(Marks : 50)

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

1. Describe the process of carbohydrate digestion and absorption in human digestive system. 5+5=10

Or

Explain the various phases of protein digestion and highlight the role of enzymes involved in each phase. 10

2. Explain the mechanism of breathing in human. 10

Or

Describe the transport of oxygen and carbon dioxide in blood. 5+5=10

3. With a well labelled diagram, describe the structure of nephron and explain its role in urine formation. 6+4=10

Or

Draw a neat diagram and explain the structure of kidney. Add a note on the regulation of water balance in the body. 7+3=10

4. Describe the composition of blood and explain the functions of its major components. 10

Or

Discuss the ABO blood group system including the antigenic determinants and blood-type compatibility.

5. With a well labelled diagram, describe the structure of mammalian heart. 10

Or

Describe cardiac cycle.

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Paper Code : ZOO/M5

(Animal Physiology—II : Life Sustaining System)

(PART : A—OBJECTIVE)

(Marks : 25)

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I. Put a Tick (✓) mark against the correct answer in the brackets provided : 1×15=15

1. What is the main function of bile in the digestive process?

- (a) To digest starch ()
- (b) To break down protein ()
- (c) To emulsify fats ()
- (d) To neutralize stomach acid ()

2. Name of the hormone which stimulates the secretion of gastric acid in the stomach is

- (a) secretin ()
- (b) CCK ()
- (c) insulin ()
- (d) gastrin ()

3. Trypsinogen is activated into trypsin in the small intestine by which enzyme?

- (a) Pepsin ()
- (b) Enterokinase ()
- (c) Lipase ()
- (d) Amylase ()

4. The majority of carbon dioxide is transported in the blood as

- (a) dissolved in plasma ()
- (b) bicarbonate ions ()
- (c) haemoglobin bound ()
- (d) carbonic acid ()

5. What percentage of oxygen is transported in the blood bound to haemoglobin?

- (a) 98-99% ()
- (b) 80-95% ()
- (c) 70-75% ()
- (d) 68-69% ()

6. Which of the following factors causes a rightward shift in the oxyhaemoglobin dissociation curve?

- (a) Decreased carbon dioxide levels ()
- (b) Increased pH ()
- (c) Increased 2,3-bisphosphoglycerate (2,3-BPG) ()
- (d) Decreased body temperature ()

7. The primary site for reabsorption of water, ions and nutrients in the nephron is

- (a) proximal convoluted tubule (PCT) ()
- (b) glomerulus ()
- (c) distal convoluted tubule (DCT) ()
- (d) collecting duct ()

8. Which region of the kidney contains the renal pyramids?

- (a) Cortex ()
- (b) Medulla ()
- (c) Renal pelvis ()
- (d) Renal capsule ()

9. The structural and functional unit of kidney is

(a) glomerulus ()

(b) renal pyramid ()

(c) nephron ()

(d) collecting duct ()

10. Which plasma protein is essential for blood clotting?

(a) Fibrinogen ()

(b) Albumin ()

(c) Globulin ()

(d) Haemoglobin ()

11. A person with blood type AB has

(a) A antigens and anti-B antibodies ()

(b) B antigens and anti-A antibodies ()

(c) A and B antigens, no antibodies ()

(d) no antigen, but both anti-A and anti-B antibodies ()

12. Haemolytic disease of the newborn (HDN) is primarily caused by

(a) ABO incompatibility ()

(b) Rh incompatibility ()

(c) high levels of fibrinogen ()

(d) low levels of platelets ()

13. Which blood vessel carries deoxygenated blood from the heart to the lungs?

- (a) Aorta ()
- (b) Pulmonary artery ()
- (c) Pulmonary vein ()
- (d) Superior vena cava ()

14. Where is the sinoatrial (SA) node located?

- (a) Right atrium ()
- (b) Left atrium ()
- (c) Right ventricle ()
- (d) Left ventricle ()

15. Which of the following correctly describes the first heart sound (S1)?

- (a) Closure of the semilunar valves ()
- (b) Opening of the AV valves ()
- (c) Opening of the semilunar valves ()
- (d) Closure of the AV valves ()

II. Write short notes on any five of the following : $2 \times 5 = 10$

1. Absorption of vitamins

- (a) Aorta
 - (b) Pulmonary artery
 - (c) Pulmonary vein
 - (d) Superior vena cava
14. Where is the sinoatrial (SA) node located?
- (a) Right atrium
 - (b) Left atrium
 - (c) Right ventricle
 - (d) Left ventricle
15. Which of the following correctly describes the first heart sound (S1)?
- (a) Closure of the semilunar valves
 - (b) Opening of the AV valves
 - (c) Opening of the semilunar valves
 - (d) Closure of the AV valves

(7)

2. Respiratory pigments

3. Enzymes in gastrointestinal tract

1. Absorption of nutrients

4. Osmoregulation

5. Homeostasis

(10)

5. Haemostasis

6. Rh factor

7. Electrocardiogram

8. Blood pressure

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