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**63(FY) SEM-4/MIN(A)/ZOOMIN2034A**

**2025**

**ZOOLOGY**

[Minor (A)]

Paper : ZOOMIN2034A

**(Physiology : Life-Sustaining Systems)**

Full Marks : 50

Pass Marks : 20

Time : Two hours

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

1. Answer the following MCQs : **(all compulsory)** 1×5=5
- (i) Cholecystokinin is released in response to
- (a) High carbohydrate intake
  - (b) Acid in the stomach
  - (c) Presence of fat and protein in the small intestine
  - (d) Low blood glucose

- (ii) What causes the rightward shift in the oxygen dissociation curve?
- High pH, low temperature
  - Low CO<sub>2</sub>, low temperature
  - Low pH, low CO<sub>2</sub>, low temperature
  - High CO<sub>2</sub>, low pH, high temperature
- (iii) Which part of the nephron is responsible for reabsorption of substances?
- Glomerulus
  - Proximal convoluted tubule
  - Loop of Henle
  - Collecting duct
- (iv) Which hormone stimulates the reabsorption of sodium and water?
- Aldosterone
  - ADH
  - Cortisol
  - Insulin
- (v) Which of the following structures carries impulses to the ventricular myocardium?
- SA node
  - AV node
  - Bundle branches
  - Purkinje fibers

2. Answer the following questions : **(any five)**  
2×5=10
- What are respiratory pigments? Mention its functions. 1+1=2
  - Which blood cells are involved in immunity?
  - What is blood pressure and how is it measured?
  - What is the SA node and where is it located?
  - What are the consequences of mismatched blood transfusion?
  - Write about the structure and function of the glomerulus?
  - What is the Bohr effect?
3. Answer the following questions : **(any five)**  
5×5=25
- Write the role of ADH in regulating water balance.
  - Describe the structural and functional between the exocrine and endocrine parts of the pancreas. 3+2=5
  - Write short notes on : 2+3=5
    - Tidal volume
    - Inspiratory reserve volume and expiratory reserve volume

(d) How does high altitude affect respiration and gas transport? What physiological adaptations occur?

2+3=5

(e) Describe the structure of a nephron.

(f) Explain the process of blood clotting. What roles do platelets and clotting factors play?

3+2=5

(g) Explain the origin and conduction of cardiac impulses in the heart.

(h) Describe the principles and components of a normal ECG.

4. Answer the following questions : (**any one**)

10×1=10

(a) Describe the mechanisms of carbohydrate digestion and absorption in gastrointestinal tract.

6+4=10

(b) Describe the oxygen-hemoglobin dissociation curve. What factors influence the affinity of hemoglobin for oxygen?

7+3=10

