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4 SEM TDC ZOOH (CBCS) C 8

2025

(May/June)

ZOOLOGY

(Core)

Paper : C-8

(Comparative Anatomy of Vertebrates)

Full Marks : 53

Pass Marks : 21

Time : 3 hours

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

1. (a) Fill in the blanks (any five) : 1×5=5

- (i) In herbivorous animal, the intestine is _____ in comparison to carnivorous animal.
- (ii) In mammals, hooves are derived from _____.
- (iii) The heart of bird is _____ chambered.
- (iv) All amniote vertebrates have _____ kidney.

(2)

(v) In mammals, _____ pairs of cranial nerves are found.

(vi) The dental formula of human is _____.

(b) Write short notes on the following : $4 \times 2 = 8$

(i) Spinal cord or Cranial nerves

(ii) Visual receptors or Auditory receptors in man

2. Give a comparative account of either epidermal or dermal derivatives of vertebrates. 7

3. Write briefly the comparison of either pectoral girdle or pelvic girdle of reptiles and birds. 7

4. What is dentition? Write about the digestive glands and their secretions in mammals. $2+5=7$

Or

Give a comparative account of digestive system of fish and bird. 7

5. Describe the accessory respiratory organs in fishes. 7

Or

Give a comparative account of lungs of fish and mammals.

(3)

6. Answer either (a) and (b) or (c) and (d) from the following : $6+6=12$

(a) Evolution of urinogenital duct

(b) Evolution of heart

(c) Types of mammalian uteri

(d) Evolution of aortic arches

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4 SEM TDC ZOOH (CBCS) C 9

2025

(May/June)

ZOOLOGY

(Core)

Paper : C-9

(Animal Physiology : Life Sustaining Systems)

Full Marks : 53

Pass Marks : 21

Time : 3 hours

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

1. (a) Fill in the blanks : 1×5=5

- (i) Loop of Henle is found in ____.
- (ii) Gastric juice is secreted by ____.
- (iii) Deficiency of vitamin A leads to ____.
- (iv) Digestion of protein is completed in ____.
- (v) The disease in which blood fails to clot is ____.

(2)

(b) Write short notes on (any two) : $4 \times 2 = 8$

(i) Histology of lung

(ii) Absorption of lipid

(iii) Regulation of blood pressure

(iv) ECG

2. Distinguish between (any two) : $4 \times 2 = 8$

(a) SA node and AV node

(b) Extrinsic and Intrinsic pathway of blood clotting

(c) Aerobic and Anaerobic respiration

(d) Tidal volume and vital capacity

3. Define nephron. Draw a neat labelled diagram of nephron. Where do ultrafiltration, reabsorption and secretion occur in a nephron? $1 + 4 + 3 = 8$

Or

Briefly state the functions of nephron in urine formation. Add a note on the mechanism of urine formation. $3 + 5 = 8$

4. What is cardiac output? Give the structure of cardiac muscle and explain the process of impulse conduction in cardiac muscle. $1 + 7 = 8$

(3)

Or

What is peristalsis? State the role of pepsin in protein digestion. Discuss the absorption of proteins in the alimentary canal. $1 + 2 + 5 = 8$

5. Write a brief note on the function of haemoglobin. Describe the ABO and MN blood groups and Rh factor. $2 + 6 = 8$

Or

What is chloride shift? Write its significance during respiration. Describe oxygen-haemoglobin dissociation curve. $1 + 2 + 5 = 8$

6. Describe the cardiac cycle of human heart. Distinguish between systole and diastole. $6 + 2 = 8$

Or

Name the enzymes for carbohydrate digestion and the substrate they digest and the products of their action. $1\frac{1}{2} + 2\frac{1}{2} + 4 = 8$

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4 SEM TDC ZOOH (CBCS) C 10

2025

(May/June)

ZOOLOGY

(Core)

Paper : C-10

(Biochemistry of Metabolic Processes)

Full Marks : 53

Pass Marks : 21

Time : 3 hours

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

1. Fill in the blanks :

1×5=5

- (a) The catalytic activity of many enzymes depends on the presence of small organic molecules or metal ions termed as ____.
- (b) Anaerobic breakdown of pyruvate yields ____.
- (c) Fatty acid oxidation occurs in the ____.

(2)

- (d) Enzymatic transfer of an amino group from an α -amino acid to an α -keto acid is called ____.
- (e) The electron transport chain is located in the ____.
2. Write short notes on (any two) : $4 \times 2 = 8$
- (a) Redox reactions
- (b) Stages of catabolism
- (c) Urea cycle
- (d) Inhibitors of ETC
3. Write the complete reactions catalysed by the following : $2 \times 5 = 10$
- (a) Phosphofructokinase-I
- (b) Pyruvate kinase
- (c) Alanine aminotransferase
- (d) Isocitrate dehydrogenase
- (e) Arginase

Or

What are shuttle systems? Write briefly about two important shuttle systems in metabolism. $3 + 7 = 10$

(3)

4. Distinguish between Glycogenesis and Glycogenolysis. Write the reactions of glycolytic pathway. $2 + 8 = 10$

Or

Describe the steps involved in citric acid cycle mentioning the enzymes involved. Calculate the energetics of citric acid cycle. $7 + 3 = 10$

5. What do you mean by β -oxidation of fatty acid? Explain the process of oxidation of a C-16 saturated fatty acid. $2 + 8 = 10$

Or

Describe the biosynthetic pathway of palmitic acid. How is β -oxidation different from ω -oxidation of saturated fatty acids? $7 + 3 = 10$

6. Define deamination. Write a reaction to illustrate the process of deamination. What happens to the C-skeleton of ketogenic amino acids? $2 + 4 + 4 = 10$

Or

What do you mean by oxidative phosphorylation? Explain the chemiosmotic hypothesis with suitable diagram. $3 + 5 + 2 = 10$
