3 Yr. Degree/4 Yr. Honours 3rd Semester Examination, 2024 (CCFUP)

Subject : Zoology

Course : ZOOL3011 (MAJOR)

(Biochemistry)

Time: 2 Hours **Full Marks: 40**

The figures in the margin indicate full marks.

Candidates are required to give their answers in their own words as far as practicable.

1. Answer *any five* questions of the following: 2×5=10

(a) Distinguish between saturated and unsaturated fatty acids.

(b) Write the function of alpha-1, 6-glycosidic linkage.

(c) Which of the following sugars is non-reducing and why?

(i) Sucrose

(ii) Glucose

(iii) Lactose

(iv) Maltose

(d) What is an optically active isomer? Provide an example from carbohydrates.

(e) Define Isoelectric pH.

(f) Explain why amino acids are referred to as zwitterions.

(g) How is a peptide bond formed?

(h) How does temperature affect enzyme activity?

2. Answer *any two* questions of the following: 5×2=10

(a) Classify fatty acids with examples on the basis of their bond pattern.

(b) Explain competitive and non-competitive inhibitions of enzyme activity with examples. 2·5×2

(c) What is oxidative phosphorylation? How does it differ from the substrate level phosphorylation? 3+2

(d) Distinguish between nucleotide and nucleoside. Compare B-DNA and Z-DNA. 2+3

3. Answer *any two* questions of the following: 10×2=20

(a) Discuss the process of citric acid cycle with its significance in metabolism. 7+3

(b) Distinguish between motif and domain. Explain transamination with example. What is β-pleated sheet? Explain hyperchromic shift. 2+4+2+2

(c) Why is pentose phosphate pathway known as hexose monophosphate shunt? Schematically represent citric acid cycle. Mention one rate-limiting enzyme of gluconeogenesis and state the reaction it catalyzes. 2+6+2

(d) Write short notes on *any two*: 5+5

(i) Mitochondrial uncoupling

(ii) Lineweaver-Burk plot

(iii) Essential and non-essential amino acids

(iv) Steroids
