

**2025/FYUG/EVEN/SEM/
ZOODSC-252/052**

FYUG Even Semester Exam., 2025

ZOOLOGY

(4th Semester)

Course No. : ZOODSC-252

(Fundamentals of Biochemistry)

Full Marks : 70

Pass Marks : 28

Time : 3 hours

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

UNIT—I

1. Answer any *two* of the following questions :

2×2=4

- (a) What are monosaccharides? Give examples.
- (b) What are glycoconjugates? Name two glycoconjugates.
- (c) Write a brief note on structural polysaccharides

2. Answer any *one* of the following questions : 10

- (a) What are carbohydrates? Explain the structure of any monosaccharide with proper illustration. Add a note on the optical activity of monosaccharide. Mention the biological importance of monosaccharides in nature. 2+4+2+2=10

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(Turn Over)

(2)

- (b) Write short notes on any *two* of the following : $5 \times 2 = 10$
- (i) Polysaccharides and their biological importance
 - (ii) Glycosylation and its significance
 - (iii) Structure of oligosaccharides

UNIT—II

3. Answer any *two* of the following questions :

$2 \times 2 = 4$

- (a) What are lipids? Name the most common type of lipid present in the brain.
- (b) What are Phospholipid? Give example.
- (c) Write briefly about the role of steroids in our body.

4. Answer any *one* of the following questions : 10

- (a) What are saturated fatty acids? Briefly discuss about the structure of saturated fatty acid with illustration. Differentiate between saturated and unsaturated fatty acids. Mention the physiological importance of both saturated and unsaturated fatty acids. $1+4+2+3=10$

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(Continued)

(3)

- (b) Write short notes on any *two* of the following : $5 \times 2 = 10$
- (i) Outline classification of lipid
 - (ii) Glycolipids and their importance
 - (iii) Triacylglycerols and its functions

UNIT—III

5. Answer any *two* of the following questions :

$2 \times 2 = 4$

- (a) What are essential and non-essential amino acids? Give example.
- (b) Name the different secondary structures found in protein.
- (c) Write briefly on derived proteins.

6. Answer any *one* of the following questions : 10

- (a) What are amino acids? Write in detail about the classification of amino acids on the basis of polarity. Mention the general properties of amino acids. Add a note on the physiological importance of essential and non-essential amino acids. $1+4+3+2=10$
- (b) What are proteins? Give a detailed account of classification of proteins. Write a note on the different bonds that stabilize protein structure at different levels. $1+5+4=10$

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(4)

UNIT—IV

7. Answer any *two* of the following questions : $2 \times 2 = 4$

- (a) Define the term 'active site' of an enzyme. What is its significance?
- (b) What are K_m and V_{max} ?
- (c) Classify vitamins with example.

8. Answer any *one* of the following questions : 10

- (a) What are enzymes? Write in detail about the classification of enzymes according to IUB with example. Mention the general properties of enzymes. $2+5+3=10$
- (b) Write short notes on any *two* of the following : $5 \times 2 = 10$
 - (i) Theories explaining mechanism of enzyme action
 - (ii) Factors affecting rate of enzyme catalysed reactions
 - (iii) Water-soluble vitamins and their source and functions

UNIT—V

9. Answer any *two* of the following questions : $2 \times 2 = 4$

- (a) What are purines and pyrimidines?

(5)

- (b) Write at least four differences between DNA and RNA.

- (c) What do you understand by Hoogsteen base pair?

10. Answer any *one* of the following questions : 10

- (a) What are nucleosides and nucleotides? Describe Watson and Crick model of DNA with proper illustration. Name different types of DNA found in nature. $2+4+2+2=10$
- (b) Write short notes on any *two* of the following : $5 \times 2 = 10$
 - (i) Different types of RNA and their functions
 - (ii) Denaturation and renaturation of DNA
 - (iii) DNA hypo- and hyper-chromaticity

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