



বিদ্যাসাগর বিশ্ববিদ্যালয়

**VIDYASAGAR UNIVERSITY**

**B.F.Sc. 1st Semester Examination 2021**

**PAPER—BFSC-105**

**FUNDAMENTALS OF BIOCHEMISTRY**

*Full Marks : 70*

*Time : 3 Hours*

*The figures in the right-hand margin indicate full marks.*

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

*Illustrate the answers wherever necessary.*

**THEORY**

1. Answer any *ten* questions.

10×2

- (a) What is reducing sugar? Give example from mono saccharide and disaccharides.
- (b) What is rate limiting step? Mention all steps of glycolysis related to rate limiting step.
- (c) Mention the role of phosphorylation and dephosphorylation of enzymes related to glycogenolysis and glycogenesis.

- (d) Write the structure of haemoglobin briefly and mention it belongs to which category of protein structure.
- (e) Give two examples of acidic and basic amino acids.
- (f) What is Zwitter ion? Explain it with diagram.
- (g) Write the chemical structure of phospholipid.
- (h) What is EPA and DHA? Write its role.
- (i) Name the new class of enzyme after 2018 with example and function.
- (j) What is zero order and first order reaction? Explain it with the help of graphical representation.
- (k) Give an example of Competitive inhibition with therapeutic uses.
- (l) Differentiate between extracellular and intracellular receptor of hormones with example.
- (m) Write the name of four hormones with their antagonist, mentioning the function.
- (n) Write the role of vitamin for enzyme activity with example.
- (o) Write the name and function of four enzymes / proteins involved with DNA replication.

**2.** Answer any six questions.

6×5

- (a) Describe fluid mosaic model with diagram.
- (b) Why Genetic code in triplet? Describe it with justification.

- (c) Write the structure of t-RNA with diagram and function.
- (d) Classify the polysaccharide with example and state its functions.
- (e) Write about the basic structure and properties of fat.
- (f) What is gluconeogenesis? Briefly mention the reactions with different substrates.
- (g) Write the function of five different water soluble vitamins.
- (h) Write about irreversible enzyme inhibition with example.
- (i) Describe the chemical structure of  $T_3$  and  $T_4$  with function.
- (j) How does loading of amino-acyl t-RNA occur in the A site of the ribosome?

### PRACTICAL

Answer any *two* questions. 2×10

1. Write down the principle and procedure of saponification value of oil. 5+5
  2. Write down the principle and method of total lipid extraction from fish tissue. 5+5
  3. Write down the principle and procedure of estimation of protein by Lowry's method. 10
  4. Write down the principle and procedure of estimation of glucose and glycogen from fish tissue. 10
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