



বিদ্যাসাগর বিশ্ববিদ্যালয়  
**VIDYASAGAR UNIVERSITY**  
**Question Paper**

**B.Sc. Honours Examinations 2021**

(Under CBCS Pattern)

**Semester - III**

**Subject : ZOOLOGY**

**Paper : C 7 - T & P**

**Fundamentals of Biochemistry**

**Full Marks : 60 (Theory-40 + Practical-20)**

**Time : 3 Hours**

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

*The figures in the margin indicate full marks.*

**(Theory)**

**Group-A**

Answer any **three** questions from the following :

12×3=36

- (a) Write down the significance of HMP pathway?
- (b) Why does gluconeogenesis not occur in muscles?
- (c) Briefly describe the cytosolic phase of Urea cycle.
- (d) Write down the role of complex-II and complex-III in electron system.

2+2+4+4

2. (a) Discuss about  $\beta$ -Oxidation of unsaturated fatty acids.  
 (b) Write the importance of essential and non-essential amino acid.  
 (c) Distinguish between nucleoside and nucleotide. 6+3+3
3. (a) What is A-DNA, B-DNA and Z-DNA ?  
 (b) Discuss about urea cycle.  
 (c) What is Zwitterion ?  
 (d) Write the function of m-RNA and t-RNA. 3+4+2+3
4. (a) Write the structure and significance of saturated fatty acid and unsaturated fatty acid.  
 (b) Describe the four components of electron transport chain. 4+8
5. (a) Write the Michaelis-Menten equation for a single substrate reaction. Describe competitive and non-competitive inhibition using Line weaver-Burke plot.  
 (b) Name different bonds involved in the formation of higher order structure of protein. Describe any two of them.  
 (c) What is Isoenzyme ? 6+4+2
6. (a) Discuss about competitive and non-competitive inhibition with respect to Line-Weaver burk plot.  
 (b) Write a short note on : Allosteric enzyme.  
 (c) What is EC number of an enzyme—briefly discuss it. 6+3+3

### Group-B

Answer any *two* questions from the following : 2×2=4

1. Write the effect of  $K_m$  on enzyme affinity ?
2. What is stereoisomer ?
3. Write short note on : cellulose.
4. Write the cyanide effect on electron transport chain.

**(Practical)**  
**Paper - C-7P**  
**(Fundamentals of Biochemistry)**

**Marks : 20**

**Group–A**

Answer *one* question from the following :

15×1=15

1. Write down the principle and procedure of protein separation technique using SDS-PAGE. 15
2. State the principle and procedure of protein estimation by Lowry Methods. 15
3. Briefly discuss the principle and procedure of Paper chromatography. State its application. 10+5

**Group–B**

Answer *one* question from the following :

5×1=5

1. State the principle of Alkaline phosphatase assay from serum. Write down its significance.
  2. Draw a schematic diagram highlighting qualitative test of carbohydrate, protein and lipids.
  3. How to estimate the Lipase activity? State its significance.
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