## WEST BENGAL STATE UNIVERSITY

B.Sc. Honours 2nd Semester Examination, 2022

# FNTACOR03T-FOOD AND NUTRITION (CC3)

## FOOD CHEMISTRY, BIOPHYSICS AND BIOCHEMICAL PRINCIPLES

Time Allotted: 2 Hours                                                  Full Marks: 40

*The figures in the margin indicate full marks.*
*Candidates should answer in their own words and adhere to the word limit as practicable.*
*All symbols are of usual significance.*

|  | **Answer any *four* questions from the following** | 10×4 = 40 |
|---|---|---|
| 1. | Define the following terms | 2×5 = 10 |
|  | (i)   Optical isomerism |  |
|  | (ii)  Abzyme |  |
|  | (iii) Ribozyme |  |
|  | (iv) Essential fatty acids |  |
|  | (v)  Protein efficiency ratio (PER) |  |
| 2. | Why is it essential to include fibres in our diet? Describe the components of dietary fibres. Why is cellulose not digested in human intestine? | 3+4+3=10 |
| 3. | Describe the primary, secondary and tertiary structures of proteins. | 2+4+4=10 |
| 4. (a) | What do you mean by first class and second class proteins? What is a reference protein? | (3+2)+5=10 |
| (b) | Classify amino acids. |  |
| 5. | What are phospholipids? Give the structure of cholesterol. What is rancidity of fats? Define acid value of fats. | 4+2+2+2=10 |
| 6. | Differentiate between competitive and non-competitive inhibition of enzymes. Describe isozymes giving suitable examples. Describe the lock and key mechanism of enzyme substrate interaction. | 4+2+4=10 |
| 7. | What is Lineweaver-Burk plot? What is its advantage over plot of Michaelis Menten equation? Describe the importance of rate limiting steps in a metabolic pathway. | 4+2+4=10 |

8.  What is stereoisomerism? Give the structures of possible stereoisomers of lactic acid. What are epimers and anomers?      3+3+4=10

9.  Explain the double titration curve of glycine. List the names of all essential amino acids. Give the structure of imino acid.      4+3+3=10

**N.B. :** *Students have to complete submission of their Answer Scripts through E-mail / Whatsapp to their own respective colleges on the same day / date of examination within* 1 *hour after end of exam. University / College authorities will not be held responsible for wrong submission (at in proper address). Students are strongly advised not to submit multiple copies of the same answer script.*

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