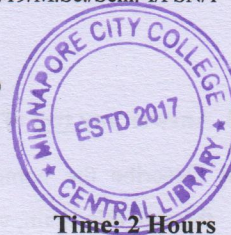


PG (NEW) CBCS  
M.Sc. Semester-I Examination, 2019  
FOOD SCIENCE & NUTRITION  
PAPER: FSN-102  
(NUTRITIONAL BIOCHEMISTRY)



Full Marks: 40

Time: 2 Hours

1. Answer any four of the following questions:

2×4=8

- a) Which chemical bonds are responsible for stabilizing the double helical structure of DNA?
- b) What is epimer? Give an example.
- c) What is saponification number?
- d) Explain significance of amphoteric molecule.
- e) What are glycolipids?
- f) Write the importance of isoelectric pH?
- g) Name two sugar derivatives of biomedical importance.
- h) Write down the roles of vitamins in activation of enzyme.

2. Answer any four of the following questions:

4×4=16

- a) Write down the differences between  $\alpha$ -helix and  $\beta$ -pleated sheet.
- b) Briefly describe the factors affecting  $T_m$  of DNA double helix.
- c) Why ascorbic acid is very essential for collagen formation?
- d) What are artificial sweeteners? Give two examples. 2+2
- e) Write a short note on liposome.
- f) What are essential fatty acids? Why unsaturated fatty acids have lower melting point than saturated fatty acids? 2+2
- g) What is 'Gibb's free energy'? Explain the second law of thermodynamics with one application in human body. 1+3
- h) Describe briefly 'Ramachandran plot' with its importance.

(Turn over)



(2)

**3. Answer any two of the following questions:****8×2=16**

- a) Describe the components of electron transport chain and electron flow through this chain, with suitable schematic diagram. 4+4
- b) i. Name the macro minerals needed for bone formation.
- ii. Discuss role of two ultra-trace minerals in human health. 2+6
- c) Which vitamins act as coenzymes? State clinical significance of at least two enzymes. 2+6
- d) i. Write down the function of DnaA, DnaB, DnaC, and DnaG protein in DNA replication.
- ii. Write a short note on OriC with diagram. 4+4

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