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

Full Marks: 40 **Time: 2 Hours**

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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 α-helix and β-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)

3. Answer any <u>two</u> 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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