



TKN/KS/16 -5770

First Semester B. Sc. Examination

BIOCHEMISTRY

Paper - I

(Biomolecules and Human Physiology)

Time : Three Hours]

[Max. Marks : 50

- N. B. : (1) All questions are compulsory and carry equal marks.
(2) Draw diagrams wherever necessary.

1. (a) Describe the reaction and mechanism of osazone formation of glucose. 5
(b) Explain the ring structure of monosaccharides. Also describe the phenomenon of mutarotation. 5

OR

- (c) Describe the reduction reaction of monosaccharides with Na/Hg. $2\frac{1}{2}$
(d) Describe the structure of glycogen. $2\frac{1}{2}$
(e) Explain the phenomenon of epimerism with suitable example. $2\frac{1}{2}$
(f) Describe the reaction of glucose with hydroxylamine. $2\frac{1}{2}$
2. (a) Define saponification. What does saponification value of a fat indicate ? $2\frac{1}{2}$

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Contd.

- (b) What are simple and mixed Triglycerides ? Explain with examples. $2\frac{1}{2}$
- (c) Explain the phenomenon of rancidity of fats. $2\frac{1}{2}$
- (d) Write a note on sphingomyelins. $2\frac{1}{2}$

OR

- (e) Give the chemical structure of phosphatidylcholine. $2\frac{1}{2}$
- (f) Write a note on halogenation. What is Iodine number ? $2\frac{1}{2}$
- (g) Write a note on essential fatty acids. $2\frac{1}{2}$
- (h) Describe the hydrolysis of triglycerides. $2\frac{1}{2}$
3. Give a detailed account of digestion and absorption of carbohydrates in the alimentary canal.

OR

- (a) Describe the structure of sarcomere of a muscle. $2\frac{1}{2}$
- (b) Briefly describe the digestions of proteins in the stomach. $2\frac{1}{2}$
- (c) What is the role of calcium in muscle contraction. $2\frac{1}{2}$
- (d) Draw a well labelled diagram of neuro-muscular junction. $2\frac{1}{2}$



(a) Describe the facilitated diffusion process of passive transport. 5

(b) Write a note on Na-K pump. 5

OR

Give a detailed account of composition of biological membranes. 10

5. Answer any **Ten** of the following :—

(I) Name any two disaccharides. 1

(II) Name the monosaccharide present in Inulin. 1

(III) Raffinose is a trisaccharide.
(True or False) 1

(IV) What are glycolipids ? 1

(V) Name any one saturated fatty acid. 1

(VI) Define Reichert-Meissel number. 1

(VII) What is Succus entericus ? 1

(VIII) Name any one proteolytic enzyme. 1

(IX) Name all the components of Actin filament. 1

(X) Name the model of biological membrane proposed by Singer and Nicolson. 1

(XI) What is a uniport Pump ? 1

(XII) How many calcium ions are transported at a time by calcium pump ? 1