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3 Hours / 80 Marks Seat No. | | | | | | | | |

Instructions – (1) All Questions are *Compulsory.*

(2) Answer each next main Question on a new page.

(3) Illustrate your answers with neat sketches wherever necessary.

(4) Figures to the right indicate full marks.

(5) Assume suitable data, if necessary.

(6) Use of Non-programmable Electronic Pocket Calculator is permissible.

(7) Mobile Phone, Pager and any other Electronic Communication devices are not permissible in Examination Hall.

Marks

1. Attempt any EIGHT of the following: **16**

a) Define the terms biochemistry and biomolecules.

b) Define enzyme inhibition? Give its types.

c) Give physiological role of sodium in body.

d) Define the terms Throbocythemia and Lymphocytosis.

e) Draw structures of Fructose and Mannose.

f) Write tests for detection of glucose in Urine.

g) Define essential fatty acids? Draw structure of any one.

h) Define ketonemia. How it occurs?

i) Name deficiency disorder of Niacin and give its signs and symptoms.

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Marks

j) Define Isoelectric point of amino acids.

k) Define Holoenzymes and Multienzymes.

l) Draw a well labelled diagram of a typical animal cell.

2. Attempt any FOUR of the following: **12**

a) Define and classify carbohydrates with example of each class.

b) Draw structure of cholesterol and give its colour reactions.

c) Describe acid base properties of amino acids.

d) Explain Koshland theory of enzyme action.

e) Write functions of blood and briefly describe its composition.

f) Enlist abnormal constituents of urine and give their significance.

3. Attempt any FOUR of the following: **12**

a) Define and classify minerals with examples.

b) Explain water balance of normal individual.

c) Describe role of vitamin A in vision cycle.

d) Briefly describe denaturation of proteins.

e) Enlist factors affecting rate of enzyme catalysed reaction and explain effect of substrate concentration on the rate.

f) Give structure, physiological functions and deficiency disorders of Thiamine.

4. Attempt any FOUR of the following: **12**

a) Define and classify proteins with examples.

b) Describe Mucosal block theory of iron absorption.

c) Explain the terms Acid value and Iodine number of Lipids with their significance.

d) Write Barfoed's test and give its significance and principle.

e) Briefly describe diagnostic applications of enzymes.

f) Define Mutarotation. Explain how it occurs.

Marks

5. Attempt any FOUR of the following: **12**

a) Define and classify enzymes.

b) Describe secondary structure of proteins.

c) Write biological role of calcium and give its deficiency disorders.

d) Explain structure of starch.

e) What is anemia? Give its types and explain Megaloblastic anemia.

f) Name protein deficiency disorders? Explain any two.

6. Attempt any FOUR of the following: **16**

a) Define lipids and give classification of lipids.

b) Explain β-oxidation of unsaturated fatty acids.

c) Draw shapes of various osazones of carbohydrates and write reaction involved in osazone formation of Glucose.

d) Describe the steps involved in Glycolysis and give its energetics.

e) Describe biological role and deficiency disorder of Riboflavin and Folic acid.

f) Explain "oxidative deamination". And transamination of amino acids.