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

Marks

1. Solve any EIGHT of the following:  

(a) Give structure of (i) Glycine (ii) Tyrosine.
(b) Define and classify “Vitamins”.
(c) Define:
   (i) Anabolism
   (ii) Catabolism
(d) Differentiate between “Fats and Oils”.
(e) Define “Biochemistry” and state its importance.
(f) Explain in brief “Benedicts Test”.
(g) Give biological functions of Calcium.
(h) Define:
   (i) Acid value
   (ii) Iodine value

(i) Define cell and give functions of Mitochondria.

(j) Define essential fatty acids with examples.

(k) Explain in short “Iodine Test”.

(l) What is active site of an enzyme?

2. Solve any FOUR of the following: 
   \[ 4 \times 3 = 12 \]
   (a) Mention the names of water soluble vitamins and their respective co-enzymes.
   (b) Explain Water-balance of normal individual.
   (c) Give physiological role of Iodine & Iron.
   (d) Explain “Lock and Key Model” of enzyme action.
   (e) Draw a neat and well labelled diagram of typical animal cell.
   (f) Explain “Oxidation of D-Glucose”.

3. Solve any FOUR of the following: 
   \[ 4 \times 3 = 12 \]
   (a) Give structure and colour reactions of cholesterol.
   (b) Define pathological urine. Name abnormal constituents of urine with diseases associated with them.
   (c) Define and classify lipids.
   (d) Explain “Osazone formation” of D-Glucose.
   (e) Give functions of Vit. C.
   (f) Define electrolytes. Write functions of electrolytes.
4. Solve any FOUR of the following: \(4 \times 3 = 12\)

(a) How will you detect (i) Sugar (ii) Ketone bodies from the given sample of urine?

(b) Write biological functions of lipids.

(c) State, what do you mean by essential and non-essential amino acids. Give examples.

(d) Classify proteins with examples.

(e) Write pharmaceutical and therapeutic significance of enzymes.

(f) Explain in brief:
   (i) Ninhydrin Test
   (ii) Biuret Test

5. Solve any FOUR of the following: \(4 \times 3 = 12\)

(a) Explain in brief:
   (i) Kwashiorkor
   (ii) Marasmus

(b) Enlist factors affecting enzyme activity. Explain the effect of temperature.

(c) Describe “Role of Vit. A in vision”.

(d) Define and classify carbohydrates with example.

(e) Give structure of
   (i) D-Glucose
   (ii) D-Fructose
   (iii) D-Galactose

(f) Explain “Mutarotation” of D-Glucose.

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6. Solve any FOUR of the following:  \[ 4 \times 4 = 16 \]

(a) Explain in brief reactions of “Glycolysis”.

(b) Explain “Formation of urea” in body.

(c) Discuss in brief reactions involved in “B-oxidation of fatty acids”.

(d) Explain “Denaturation of Proteins”.

(e) Explain in detail “Kreb’s Cycle”.

(f) Define enzymes. Classify them on the basis of type of reaction catalysed by them.