20223

12526

03 Hours / 80 Marks

Seat No. | | | | | | | | |

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

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

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

(4) Figures to the right indicate full marks.

(5) Assume suitable data, if necessary.

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

Marks

1. Attempt any SIX of the following: **30**

a) Define the term 'Enzyme'. Enlist any four factors affecting enzyme activity. Explain the mechanism of action of enzymes. (Any one model)

b) Explain beta-oxidation of unsaturated fatty acid with energetic of palmitic acid.

c) What are carbohydrates? How are they classified? Give examples and draw the structures of glucose and fructose.

d) Define Transamination and Deamination. Explain the Urea Cycle in Detail.

e) Explain any four functions of the kidney and describe the routinely performed tests to assess kidney function along with their clinical significance. (Any three points)

f) Define amino acids. Classify amino acids based on chemical nature and nutritional requirement with examples. Describe the Ninhydrin test.

g) Discuss in brief the steps involved in TCA cycle and give its energetics.

2. Attempt any TEN of the following: **30**

a) Classify minerals. Mention any four functions of minerals.

b) Name any six vitamins and mention one deficiency disease associated with each.

c) Define :–

i) Rancidity

ii) Saponification

iii) Lipids.

d) What is biological oxidation? Explain the electron transport chain (ETC) involved in this process.

e) Discuss any three diseases due to abnormal RBCs.

f) What is Oral Rehydration Therapy (ORT)? Write the composition and significance of ORS.

g) Explain Watson and Crick model of DNA.

h) Enlist various diseases related to abnormal carbohydrate metabolism and briefly describe Diabetes Mellitus.

i) Define Glycosuria, Proteinuria and Ketonuria.

j) What are fatty acids? Classify them based on their chemical structure and nutritional requirement with example.

k) List the components of a lipid profile test and state their clinical significance.

Marks

3. Attempt ALL of the following: **20**

a) Match the Pair :

Vitamin		Function	
A)	Vitamin K	i)	Collagen synthesis and wound healing
B)	Vitamin D	ii)	Blood clotting
C)	Vitamin E	iii)	Calcium absorption
D)	Vitamin C	iv)	Antioxidant protection

b) The major cation in extracellular fluid is ..... .

c) Write any two functions of Nucleic acids.

d) Which of the following abnormal RBCs is commonly seen in megaloblastic anemia?
   i) Microcyte
   ii) Schistocyte
   iii) Macrocyte
   iv) Drepanocyte.

e) The powerhouse of the cell is ..... .

f) State True or False : Amylase is an enzyme that breaks down proteins.

g) Which of the following ions is the major intra cellular cation?
   i) Potassium
   ii) Sodium
   iii) Calcium
   iv) Magnesium.

h) Which organelle is involved in protein synthesis?

i) The region on the enzyme where the substrate binds is called the ..... site.

j) Name the disease caused due to protein malnutrition.

k) Draw structure of Galactose.

l) A nucleoside consists of ..... .

m) A decrease in glomerular filtration rate (GFR) suggests:
   i) Enhanced liver function
   ii) Normal kidney function
   iii) Reduced kidney function
   iv) High hemoglobin level.

n) Explain Biuret test.

o) Define Biotechnology.

p) Draw structure of cholesterol.

q) What is the main organ for urea cycle?

r) Who is known as the “Father of Modern Biotechnology”?

s) Name the coenzyme of Vitamin B1 (Thiamine).

t) Pellagra is caused due to deficiency of Vitamin ..... .