Q1. Write in detail about the inter-relationship between various metabolic pathways (20 marks)

Q2. Write short notes on: (5 marks each = 20)

a. Detoxification of ammonia from brain
b. Significance of Rapaport Leubering pathway
c. Lipid storage diseases
d. Gluconeogenesis and its significance during starvation

Q3. Multiple choice questions: (Each question caries 1 mark: Total 10 marks)

a. Which of the following statements is **FALSE** regarding the active site of an enzyme?
   A) An active site is normally a hollow or cleft on the surface of an enzyme
   B) An active site is normally hydrophilic in nature
   C) Substrates fit into active sites and bind to functional groups within the active site
   D) An active site contains amino acids which are important to the binding process and the catalytic mechanism

b. Which of the following molecules is involved in the feedback control of the enzyme phosphorylase *A:*
   A) Glucose-1-phosphate
   B) Adrenaline
   C) Glycogen
   D) AMP

c. From which amino acid is nitrous oxide generated?
   A) Arginine
   B) Aspartic acid
   C) Asparaginase
   D) Lysine

d. Hemolytic anemia is caused by the deficiency of the enzyme:
   A) Glycogen phosphorylase
   B) Succinate dehydrogenase
   C) Glucose 6 phosphate dehydrogenase
   D) Hexokinase

e. Causes of metabolic alkalosis include all the following, EXCEPT:
   A) Prolonged vomiting
   B) Continuous gastric aspiration
   C) Hyperventilation
   D) Ingestion of antacids

f. Maple syrup urine disease is an inborn error of metabolism of:
   A) Sulphur-containing amino acids
   B) Aromatic amino acids
   C) Branched chain amino acids
   D) Dicarboxylic amino acids

g. Dental caries occur in children due to excess consumption of:
   A) Glucose
   B) Sucrose.
   C) Lactose
   D) Maltose

h. Albinism is due to deficiency of the enzyme:
   A) Phenylalanine hydroxylase
   B) Tyrosinase
   C) p-Hydroxyphenylpyruvic acid oxidase
   D) Tyrosine dehydrogenase

i. The isoenzymes of LDH
   A) Differ only in a single amino acid
   B) Differ in catalytic activity
   C) Exist in 5 forms depending on M and H monomer contents
   D) Occur as monomers

j. Which of the following isoenzyme variants of CK is elevated in myocardial infarction?
   A) CK-BB
   B) CK-MB
   C) CK-MM
   D) All the above

Fri, 27th May 2022 *Max marks 50*

Q1. Discuss about the role of biochemistry in medicine. (10 +10 = 20 marks)
Also add a note on the role of Iron in human body

Q2. Write briefly on: (4 x 5 = 20 marks)
(a) Diagnostic importance of isoenzyme giving few examples
(b) Dyslipidemias
(c) Gout
(d) Fluid Mosaic Model Structure of biological membrane with diagram

Q3. Multiple Choice Questions: (Each question caries 1 mark = 10)

a. Synovial fluid contains:
A) Heparin
B) Hyaluronic acid
C) Chondroitin sulphate
D) Keratin sulphate

b. Nascent HDL of intestinal origin lacks:
A) Apo A
B) Apo C
B) Apo E
D) Apo C and Apo E

c. Urinary urobilinogen is absent in:
A) Obstructive Jaundice
B) Haemolytic Jaundice
C) Hepatic Jaundice
D) Neonatal Jaundice

d. Menke's disease is a X-linked disease characterized by
A) Low level of hepatic copper
B) High levels of ceruloplasmin
C) High levels of plasma calcium
D) High level of hepatic copper

e. Albinism is due to deficiency of the enzyme:
A) Phenylalanine hydroxylase
B) Tyrosinase
C) p-Hydroxyphenylpyruvic acid oxidase
D) Tyrosine dehydrogenase

f. The enzyme phosphofructokinase is an example of:
A) Hydrolase
B) Oxidoreductase
C) Transferase
D) Ligase

g. Refsum's disease results from a defect in the following pathway:
A) Alpha-oxidation of fatty acids
B) Beta-oxidation of fatty acids
C) Gamma-oxidation of fatty acids
D) Omega-oxidation of fatty acids

h. Free fatty acids released from adipose tissue are transported in blood by:
A) Albumin
B) VLDL
C) LDL
D) HDL

i. In case of competitive enzyme inhibition:
A) Vmax increases while Km remains the same
B) V_{max} decreases while Km remains the same
C) V_{max} remains the same while Km increases
D) V_{max} remains the same while Km decreases

j. Gold standard marker for GFR (glomerular filtration rate) estimation is
A) Urea clearance
B) Cystatin C clearance
C) Creatinine clearance
D) Inulin clearance