(3 hours) **Total Marks: 80**

N.B.: **All** questions are compulsory

Q1

a) Enlist the precursors used for purine biosynthesis. 1
b) Name any one regulatory enzyme for TCA cycle. 1
c) Enlist the two enzymes present only in Glyoxylate pathway 1
d) Give any one shuttle system for transfer of reducing equivalents to mitochondria 1
e) Give examples of physiological uncouplers of ETC 1
f) Name the prostaglandin inhibitor drugs. 1
g) Give the step which is regulatedin cholesterol biosynthesis 2
h) Explain oxidative phosphorylation 2
i) Give the regulation of pyrimidine nucleotide biosynthesis 2
j) Enlist true ketone bodies with their structure 2
k) Give the significance of Pentose phosphate pathway 2
l) Calculate the total ATPs obtained in β- oxidation of palmitic acid 2
m) Define "Glycolysis" and give the ATP consumption in preparatory phase of Glycolysis 2

Q2 (a) Give the names and structures of substrate and product, coenzyme for the following enzyme catalysed reaction **(Any four)** 8

i) Thiokinase
ii) Pyruvate kinase
iii) Fumarase
iv) Lipoxygenase
v) OMP decarbxylase

(b)Give the name of the enzyme catalysing the following conversion 4

i) β-Hydroxy acyl ACP from β-Ketoacyl ACP
ii) Carbamoyl asparate to Dihydroorotate
iii) Fructose 1, 6- bisphosphate to fructose 6- Phosphate
iv) L-methyl-malony-CoA to succinyl-CoA

Q3 (a) Explain payoff phase of glycolysis. 3
(b)Write reactions for oxidative phase of HMP pathway 3
(c) Explain the citrate shuttle involved in synthesis of fatty acids 2
(d) Give synthesis of phosphatidyl choline 2
(e) Explain the steps involved in synthesis of GMP from IMP 2

Q4. (a)Explain the complexes of ETC	3
(b) Write the activation and transport shuttle for beta oxidation of fatty acid	3
(c) Discuss the utilization of ketone bodies	2
(d) Explain glycogenesis	2
(e) Outline the reactions involved in formation of OMP from Dihydroortate	2
Q5 (a) Give the reactions involved in conversion of citrate to succinyl CoA	3
(b) Explain the β-oxidation of mono unsaturated fatty acids	3
(c) Explain proton motive force.	2
(d) Outline the steps involved in mevalonate pathway	2
(e) Explain synthesis of phosphoribosyl β-amine from ribose-5-phosphate	2
Q6 (a) Differentiate β-oxidation and biosynthesis of fatty acid	3
(b) Write three bypass reactions for reversal of glycolysis in gluconeogenesis	3
(c) Describe the Glycerol phosphate shuttle	2
(d) Give the synthesis of CTP from UMP	2
(e) Enlist drugs inhibiting nucleotide synthesis.	2