(3 hours) Total Marks: 70

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

Q. 1a) Draw the structure of β-D glucose by using Haworth projection formula 1

b) Draw the structure of D-xylose by using Fischer projection formula 1

c) Define vitamins 1

d) Define enzyme induction and repression 1

e) Explain inversion of sucrose 1

f) Draw the structure of Lecithin 1

g) Name the proteolytic enzyme required for digestion of protein 1

h) Deficiency of Vitamin C leads to…….. 1

i) Write the structure of any one epimer of glucose 1

j) Give name and draw the structure of an aromatic amino acids 2

k) Explain catabolism with example 2

l) Name and write the structure of coenzyme form of Vitamin $B_1$ 2

Q. 2 a) Derive Michaelis Menten equation. 3

b) Give the role of FADH2 as an energy carrier 3

c) Discuss the biochemical role played by Vitamin B2 or Vitamin B6 3

d) Enumerate silent features of digestion and absorption of carbohydrates 2

Q. 3 a) Write a note on starch 3

b) Give detail account of vitamin folic acid 3

c) Write the reaction catalyzed by following enzymes (any two) 3

i) Thymidylate synthetase ii) DHFR iii) HIV protease

d) What is the concept of free energy and standard free energy 2

Q. 4 a) Classify amino acids based on their nutritional requirement give at least two structures of each class 3

b) Write a note on Glycolipid or Lipoprotein 3

c) Discuss the biochemical role of pantothenic acid or nicotinamide 3

d) Explain thermodynamically favorable reaction 2

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| Q. 5 | a) Write a note on diasscharides | 3 |
| | b) Explain with reaction role of retinal in the body | 3 |
| | c) Write a note on Vitamin D or Vitamin A | 3 |
| | d) Classify fatty acids with example | 2 |
| Q. 6 | a) Give detail classification of lipid | 3 |
| | b) Write a note on Ascorbic acid or Biotin | 3 |
| | c) Describe α- helix structure of protein in detail | 3 |
| | d) Differentiate between fats and oils | 2 |

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