

(3 hours)

Total Marks: 80

N.B.: All questions are compulsory

- Q. 1 a) Draw the structure of  $\alpha$ - D glucose by using Haworth projection formula 1  
 b) Draw the structure of D-ribose by using Fischer projection formula 1  
 c) Give the name and three letter code of an amino acid containing aromatic ring 1  
 d) Explain anabolism with example 1  
 e) Enlist water soluble vitamins 1  
 f) Define isoelectric pH 1  
 g) Give the structure of coenzyme of Vitamin B<sub>6</sub> 1  
 h) Name the purine nitrogenous bases 1  
 i) Draw the structure of sucrose 1  
 j) Draw the structure of cephalin 1  
 k) Draw the structure of ADP 1  
 l) Deficiency of Vitamin-D leads to..... 1  
 m) Give the name and draw the structure of acidic amino acids 2  
 n) Differentiate between non reducing disaccharides and reducing disaccharides 2  
 o) Enlist essential amino acids 2  
 p) Explain the primary structure of proteins 2
- Q. 2 a) Explain the  $\beta$ - plated secondary structure of proteins 3  
 b) Explain NADH as energy carrier 3  
 c) Discuss the biochemical role Vitamin –B<sub>2</sub> or Vitamin –B<sub>1</sub> 3  
 d) Write a note on nucleoside and nucleotide 2  
 e) Enumerate salient features of digestion of fatty acid 1
- Q. 3 a) Write a note on polysaccharides 3  
 b) Write a note on biochemical role of Vitamin- A or Vitamin –D 3  
 c) Explain Watson and crick model of DNA with diagram 3  
 d) Explain standard free energy and transformed free energy 2  
 e) Comment on conversion of glucose to energy in RBCs 1
- Q. 4a) Classify amino acids based on functional group with examples (No structures required) 3  
 b) Write a note on phospholipids 3  
 c) Discuss the biochemical role B-<sub>9</sub> 3  
 d) Write a note on Vitamin-B<sub>3</sub> or Vitamin –B<sub>12</sub> 2  
 e) State second law of thermodynamics 1
- Q. 5 a) Write a note on polysaccharides 3  
 b) Write a note on Vitamin- B<sub>5</sub> or Vitamin –B<sub>7</sub> 3  
 c) Write a note on Vitamin –C 3  
 d) Draw the structures of two monounsaturated fatty acid 2  
 e) Write salient features of protein digestion 1
- Q. 6 a) Explain melting and annealing of DNA 3  
 b) Write a short note on Vitamin-K or Vitamin –E 3  
 c) Write a note on Triglycerides 2  
 d) Explain thermodynamically unfavorable reaction 2  
 e) Write a note on rancidity 2