



**III State whether true or false:**

21. The molecular logic of life is a set of relationships characterizing the nature, function, and interactions of biomolecules
22. Energy is produced in the form of ADP at the end of oxidative phosphorylation.
23. Transamination reaction of glutamic acid and pyruvic acid gives  $\alpha$  ketoglutaric acid and aspartic acid.
24. Thiolytic cleavage during beta oxidation of fatty acids is catalysed by aldolase
25. Apoenzyme is the non-protein part of the enzyme

**IV Answer the following in a line or two:**

26. Ketone bodies
27. Gluconeogenesis
28. White blood cells are known as “the army of human body”. Give reason
29. What is isoelectric point?
30. A segment of one strand from a DNA molecule has the sequence 5'-TCCATGAGTTGA-3'. What is the sequence of nucleotides in the opposite, or complementary, DNA chain

**SECTION - B****(5x6=30)****Answer any FIVE questions:**

31. Bicarbonate buffer play a significant role in maintaining the pH of blood. Explain
32. Distinguish between alpha, beta and gamma amino acids based on the action of heat.
33. Enumerate the sources and functions of insulin.
34. Discuss the mechanism of competitive and non-competitive inhibition of enzyme activity with suitable examples.
35. Illustrate with a neat diagram the structure of the Watson and Crick model of the DNA.
36. Explain the sequential steps involved in Urea cycle.
37. Describe the various steps involved in the formation of glycogen from glucose.

**SECTION - C****(2x20=40)****Answer any TWO questions:**

38. a) Discuss the mechanism of coagulation of blood with a neat schematic diagram.  
 b) How are amino acids classified based on 'R' groups? Give examples.  
 c) Explain  $\beta$  oxidation of fatty acids. (8+5+7)
39. a) Differentiate the structure and functions of m RNA, t RNA and r RNA.  
 b) Discuss using relevant biochemical equations the mechanism by which a glucose is oxidised aerobically to pyruvate. Calculate the net gain of ATP molecules generated by this process. (10+10)
40. a) Evaluate the classification of enzymes according to the International Union of Biochemists.  
 b) Discuss the source and functions of vitamin A.  
 c) Explain the process of DNA Replication. (8+6+8)

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