



- Notes :
1. All questions carry equal marks.
  2. Diagrams and Chemical equation should be given wherever necessary.
  3. All questions are compulsory.

### 1. Multiple Choice questions

**20x1  
=20**

- 1) Based on which of the following enzymes Hydrolysis reaction are catalyzed?
  - a) Hydrolase
  - b) Oxidoreductase
  - c) Isomerase
  - d) Ligase
- 2) Which of the following is an Imino acid?
  - a) Serine
  - b) Alanine
  - c) Glycine
  - d) Proline
- 3) Who deduced the double helical structure of DNA?
  - a) Watson & Francis crick
  - b) Frederick sanger
  - c) Anton van Leeuwenhoek
  - d) Mendel
- 4) Which of the following catalyzes the reversible degradation of 2-phosphoglycerate to phosphoenolpyruvate?
  - a) Trypsin
  - b) Enolase
  - c) Chymotrypsin
  - d) Hexokinase
- 5) Pompe's Disease is caused by deficiency of:
  - a) Glucose - 6- phosphatase
  - b) Glyceraldehyde - 3 phosphatase
  - c) Ribose-1, 5-bisphosphatase
  - d) Lysosomal alpha-1, 4-glycosidase
- 6) HMG CoA is formed during metabolism of all except:
  - a) Leucine
  - b) Cholesterol
  - c) Ketone bodies
  - d) Bile acid
- 7) The naturally occurring protein consist of:
  - a) D-amino acid
  - b) L-amino acid
  - c) Both a & b
  - d) None of these
- 8) Relationship between changes in free energy enthalpy and entropy is given by which of the following equation?
  - a)  $\Delta G = \Delta H + T\Delta S$
  - b)  $\Delta G = \Delta H - T\Delta S$
  - c)  $\Delta G = \Delta S - T\Delta H$
  - d)  $\Delta G = \Delta S + T\Delta H$
- 9) Which out of the following has the highest redox potential:
  - a) NAD
  - b) FMN
  - c) FAD
  - d) O<sub>2</sub>

- 2

- 2. Solve any two.** **2x10  
=20**
- a) Explain HMP Shunt Pathway with its significance & also add a note on G6PD deficiency.
  - b) Define, classify, explain the chemical nature & Biological role of all biomolecules.
  - c) Describe the biosynthesis of Purine & Pyrimidine Nucleotides.

- 3. Solve any seven.** **7x5  
=35**
- a) Explain DNA replication process.
  - b) Explain the concept of free energy and differentiate between exergonic & endergonic reaction.
  - c) Add short note on Oxidative Phosphorylation.
  - d) Give the synthesis & significance of 5-HT & Melatonin.
  - e) Explain the biochemical function & structure of Coenzymes.
  - f) Describe Glycolysis pathway.
  - g) Explain catabolism of phenylalanine & tyrosine.
  - h) Explain Urea cycle.
  - i) Define Enzymes with its properties, nomenclature & IUB classification.

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