

[Time: 2½Hours]

[ Marks:75]

Please check whether you have got the right question paper.

- N.B:
1. Attempt all questions.
  2. All questions carry equal marks.
  3. Draw neat labelled diagrams wherever necessary.
  4. Use of non-programmable calculator is allowed.

**Q.1 Do as directed: (any fifteen)**

15

- i. The functional unit of an enzyme is called as \_\_\_\_\_.  
a. Apoenzyme b. Holoenzyme c. Core-enzyme
- ii. A plot of reciprocal of velocity versus the reciprocal of substrate concentration which yields a straight line is called as \_\_\_\_\_.  
a. Line Weaver Burk plot b. Haldane plot c. Ramachandran plot
- iii. \_\_\_\_\_ is the non-protein part of the enzyme required for enzyme activity.  
a. Apoenzyme b. Holoenzyme c. Co-enzyme
- iv. James Sumner first achieved the isolation and crystallization of the \_\_\_\_\_ enzyme.  
a. Urease b. Catalase c. Amylase
- v. Enzymes reduce the \_\_\_\_\_ energy to increase the rate of reaction.  
a. binding b. potential c. activation
- vi. A low \_\_\_\_\_ indicates strong affinity between substrate and enzyme.  
a.  $V_{max}$  b.  $K_m$  c.  $[S]$
- vii. \_\_\_\_\_ enzymes have special sites other than active sites for modulators to bind.  
a. Extracellular b. Intracellular c. Allosteric
- viii. Define Innate Immunity.
- ix. Give the name of the antibody that crosses the placental barrier.
- x. Name any one primary lymphoid organ.
- xi. The acronym HI stands for \_\_\_\_\_.
- xii. One method of purification of monoclonal antibodies.
- xiii. Any one category of traditional vaccines.
- xiv. Compute Mean 11,12,13,14,15,16,17,18,19,20
- xv. \_\_\_\_\_ is a positional average.
- xvi. Square of Standard Deviation is \_\_\_\_\_.
- xvii. State True or False:- Histogram is a two dimensional graph.
- xviii. State True or False:- The figure obtained by joining vertical bars is known as frequency polygon.
- xix. Define- Range.
- xx. Give the formula to calculate Coefficient of Variance.

**Q.2 a. Enlist the salient features of active site of an enzyme.**

8

**b. Give an account of different classes of enzymes.**

7

OR

- c. Derive the relationship between substrate concentration and enzyme activity. 8
- d. Give an account of different theories/models of enzyme-substrate complex formation. 7
- Q.3 a. Differentiate Active and Passive Immunity. 8
- b. Diagrammatically explain the structure of an antibody molecule. 7
- OR
- c. Discuss various classes of immunoglobulins. 8
- d. Schematically explain the production of monoclonal antibodies. 7
- Q.4 a. Define Biostatistics. Discuss the importance of Biostatistics in Biology. 8
- b. Explain Median and Mode and also Compute Median and Mode for the following data 7  
 15, 16, 17, 18, 19, 20, 33, 12, 56, 14, 14, 11, 14, 14, 14, 16, 17, 18, 19, 30, 34, 35, 34, 14, 25.
- OR
- c. Compute Standard Deviation for the respiratory rate in 10 cases as follows 8  
 23, 22, 20, 24, 16, 17, 18, 19, 21, 20.
- d. Explain representation of data using Bar graph, Pie charts and Histogram. 7
- Q.5 Write short notes on any three of the following: 15
- a. Reversible Enzyme Inhibition.
  - b. Applications of enzymes.
  - c. Any one technique of Agglutination.
  - d. Variance.
  - e. Data and its types.