

2 ½ Hours

Total Marks: 75

1. Attempt all questions.
2. All questions carry equal marks.
3. Draw neat labeled diagrams wherever necessary.
4. Use of log tables and non-programmable calculator is allowed.
5. For Q.2, Q.3 and Q.4 attempt A and B OR C and D

Q.1 Do as directed (Any fifteen)

1. Define Zymogen.
2. The functional unit of enzyme is called as _____.
a. apoenzyme b. holoenzyme c. co-enzyme
3. Emil Fischer proposed the _____ model of an enzyme-substrate interaction.
a. Koshland b. lock and key c. substrate strain
4. Enzymes reduce the _____ energy to increase the rate of reaction.
a. binding b. potential c. activation
5. _____ is the non-protein substituent which binds the apoenzyme.
a. cofactor b. anti-metabolite c. enzyme
6. The interaction of the substrate with the enzyme causes a conformational change in the enzyme termed as _____.
a. lock and key b. denaturation c. induced fit
7. The substrate binds at the _____ site on the enzyme.
a. allosteric b. active c. initiation
8. The lymphocyte that produces antibodies
a. B cell b. T cell
9. The immunity in which the T lymphocytes participate is
a. Humoral Immunity b. Cell Mediated Immunity
10. The antibody that does not cross the placental barrier.
a. IgM b. IgG
11. The immunity we obtain on exposure to antigen is
a. Acquired Immunity b. Innate Immunity
12. When a particulate antigen reacts with its antibodies to form clumps it is called _____.
a. Agglutination b. Precipitation
13. A plant used for edible vaccines.
a. Potato b. Onion
14. Calculate Median: 2,4,6,8,10,12,14,16,18,20,22.
15. Calculate variance if standard deviation is 4.
16. Define Mode.
17. Define Arithmetic mean.
18. State true or false: A pie chart is a circular statistical graphic which is divided into slices to illustrate numerical proportion.

19. State true or false: Frequency polygon is a smooth curve which corresponds to the limiting case of a histogram computed for a frequency distribution of a continuous distribution as the number of data points becomes very large.

20. Give formula to calculate Range.

Q. 2 A Derive the Michaelis- Menten equation.

Q. 2 B Elaborate on Enzyme inhibition.

OR

Q. 2 C What are enzymes and give an account of different classes of enzymes.

Q. 2 D Discuss Allosteric regulation.

Q. 3 A Define Agglutination and explain any one technique.

Q. 3 B Differentiate between Active and Passive immunity.

OR

Q. 3 C Explain with a diagram the structure of IgA.

Q. 3 D Discuss Hybridoma technology.

Q. 4 A What is biostatistics? Discuss the applications of this branch in biological sciences.

Q. 4 B Calculate arithmetic mean for the following grouped data:

0-10	10-20	20-30	30-40	40-50
5	10	15	20	25

OR

Q. 4 C Calculate Mean and Standard deviation for the marks obtained by 10 students in a weekly test.

Roll No	1	2	3	4	5	6	7	8	9	10
Marks	15	15	15	18	17	20	20	13	15	12

Q. 4 D Explain: -Histogram, Pie chart and frequency curve.

Q. 5 Write Short notes on any three of the following

- Effect of temperature and pH on enzyme activity.
- Applications of enzymes.
- Features of an antigen.
- Any one secondary lymphoid organ.
- Variance and Coefficient of variance.