

2 ½ Hours

TOTAL MARKS: 75

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

**Q 1 Select the appropriate option for the following questions:****40**

1. The term enzyme was coined by \_\_\_\_\_  
(Fredrick W. Kuhne, Eduard Buchner, James Summner, Louis Pasteur)
2. Which of the following enzymes was first isolated and crystallized by James Sumner?  
(Lipase, Cellulase, Urease, Amylase)
3. A complete catalytically active enzyme together with a bound coenzyme and metal ion is called a \_\_\_\_\_. (Apoenzyme, Proenzyme, Zymogen, Holoenzyme)
4. According to the international enzyme classification system all known enzymes are divided into \_\_\_\_\_ classes. (Four, Five, Six, Seven)
5. According to \_\_\_\_\_ the active site of an enzyme is a rigid and pre shaped template where only a specific substrate can bind.  
(Substrate strain theory, Koshland's model, Fischer's template theory, Hidden Markov Model.)
6. \_\_\_\_\_ is the most frequently found amino acid at the active site of enzymes.  
(Proline, Methionine, Serine, Phenylalanine)
7. When the effect of temperature on enzyme activity is studied \_\_\_\_\_ curve is observed.  
(Bell shaped, Straight line, Sigmoid, L-shaped.)
8. Vaccine produced by weakening a pathogen is known as \_\_\_\_\_ vaccine.  
(Attenuated, Intensified, Dispersed, Killed)
9. \_\_\_\_\_ provides the first line of defence against infection.  
(Adaptive Immune response, Specific Immunity, Innate Immunity, Acquired Immunity)
10. The ability of the immune system to distinguish self from nonself is known as \_\_\_\_\_.  
(Diversity, Antigenic Specificity, Inflammation, Self/Non-Self recognition)
11. The ingestion of extracellular particulate material happens by \_\_\_\_\_.  
(Phagocytosis, Lysosome, Chemotaxis, Pinocytosis)
12. \_\_\_\_\_ is produced within the host cell itself.  
(Exogenous antigen, Endogenous antigen, Foreign antigen, Carcinogens)
13. One of the most sensitive techniques for detecting antigen or antibody is \_\_\_\_\_.  
(Enzyme Linked Immunosorbent Assay, Western Blotting, Northern Blotting, Radioimmunoassay)
14. In \_\_\_\_\_ the chance of a susceptible individual contacting an infected individual is low.  
(Adaptive Immunity, Herd Immunity, Innate Immunity, Non Specific Immunity)
15. Which measure of central tendency includes the magnitude of scores?  
(Mean, Mode, Median, Range)
16. Which of the following diagrams is used to find the value of mode graphically?  
(Pie chart, Bar graph, Histogram, None of the above)

17. The mean of 9 observations is 16. One more observation is included and the new mean becomes 17. The 10th observation is \_\_\_\_\_.  
(18, 26, 30, 7)
18. The numerical value of a standard deviation can never be \_\_\_\_\_.  
(Negative, Zero, Larger than the variance, Same as central tendency)
19. The type of variable which can take fixed integer values is classified as \_\_\_\_\_.  
(flowchart variable, discrete variable, continuous variable, measuring variable)
20. In statistical analysis, the sample size is considered large if  
( $n \geq 30$ ,  $n < 30$ ,  $n \geq 50$ ,  $n < 50$ )

**Q. 2 A** With a neat labelled diagram explain the effect of substrate concentration on enzyme activity. 07

**Q. 2 B** Write a short note on enzyme specificity. 04

OR

**Q. 2 C** Enlist the factors affecting enzyme activity. Explain in detail the effect of any one factor on enzyme activity. 07

**Q. 2 D** Write a short note on double reciprocal plot. 04

**Q. 3 A** Write a note on Anatomic Barriers. 07

**Q. 3 B** Explain Radial immunodiffusion technique. Draw a neat labelled diagram. 04

OR

**Q. 3 C** In brief, explain types of Enzyme linked Immunosorbent Assay (ELISA). 07

**Q. 3 D** Write a short note on antigen-presenting cells. 04

**Q. 4 A** State and explain Range. What are its merits, demerits and uses? 07

**Q. 4 B** Grain lengths of rice are given below. Calculate the mean, and standard error. 04

Grain length (mm)	No. of grain
9-11	3
12-14	5
15-17	9
18-20	3

OR

**Q. 4 C** Find the mean, median and mode of the following data given below: 07

Class boundaries	15-25	25-35	35-45	45-55	55-65	65-75
Frequency	4	11	19	14	0	2

**Q. 4 D** Merits and Demerits of Arithmetic Mean. 04

**Q. 5** Do as directed (Any Two) 02

- Define the active site of an enzyme.
- Name cardinal events of inflammation.
- What is an equivalence zone?
- Advantages of graphical representation of data.