SUGUNA INTERNATIONAL SCHOOL

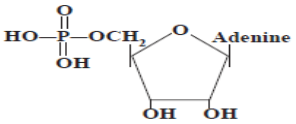
Cyclic Test – 3

Class & Sec: XI A **Subject: BIOLOGY**

Date: 14.11.2025 **Marks: 25**

SECTION – A (1 MARK)

1. Write the structural formula of cysteine.
2. The K_m value of an enzyme is the substrate concentration at
   (a) V_{max} (b) $\frac{1}{2} V_{max}$ (c) $\frac{1}{4} V_{max}$ (d) $\frac{3}{4} V_{max}$
3. Chitin, forming the exoskeleton of arthropods is a
   (a) storage polysaccharide (b) N-containing structural polysaccharide
   (c) mucopolysaccharide (d) N-containing structural oligosaccharide
4. Living organisms contain a number of carbon compounds in which heterocyclic rings are found. Identify the compounds with heterocyclic rings and select the correct option.
   A. Thymine B. Thiamine C. Guanine D. Glycine E. Uracil F. Lysine
   (a) A, B and D (b) A, C and E (c) B, D and E (d) B, D and F
5. The given structural formula represents
   (a)adenine (b)adenosine
   (c)guanine (d)adenylic acid



6. The most abundant protein in the biosphere is A and that in the animal world is B.
   (a) A. Collagen, B. Casein
   (b) A. Collagen, B. Ribulose bisphosphate carboxylase-oxygenase
   (c) A. Ribulose bisphosphate carboxylase-oxygenase, B. Collagen
   (d) A. Amylase, B. Collagen

SECTION – B (2 MARKS)

7. Classify the following secondary metabolites into their respective categories and fill in the blanks a, b, c and d in the given table:

(*i*) Curcumin	a
(*ii*) Concanavalin A	b
(*iii*) Morphine	c
(*iv*) Rubber	d

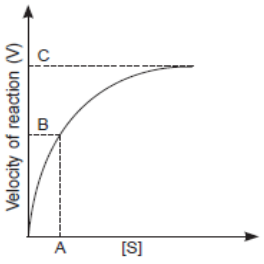
8. What is meant by rate of a chemical reaction? How is it represented?

SECTION – C (3 MARKS)

9. Describe the influence of temperature on enzyme action.
10. Describe the quaternary structure of proteins. Give an example.

SECTION – D (CASE BASED – 4 MARKS)

11. Study the following graph showing the effect of substrate concentration on the rate of enzyme activity and answer the questions that follow:
    (a) Define what is represented by A.
    (b) What does C represent in the graph?
    (c) Why is there no further increase in the velocity of enzyme action with addition of substrate?
    (d) How can the catalytic efficiency of two enzymes be compared? Justify your answer.



SECTION – E (5 MARKS)

12. Explain the structure of DNA. Write any three major differences between DNA and RNA.