

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)**15**

1. Which of the following is an example of an addition reaction?
 - a. ethene to 1,2-dichloroethane
 - b. 1-chloroethane to 1-bromoethane
 - c. 1-chloroethane to ethene
2. Which of the following is an essential element in the biological system?
 - a. Carbon
 - b. Radium
 - c. Helium
3. Which of the following enzymes requires a co-enzyme?
 - a. amylase
 - b. Kinase
 - c. peptidase
4. Which is the oxygen binding protein in blood?
 - a. Myoglobin
 - b. Hemoglobin
 - c. Keratin
5. Which of the following is a reaction catalysed by peroxidase?
 - a. $\text{H}_2\text{O}_2 + \text{AH}_2 \rightarrow 2\text{H}_2\text{O} + \text{A}$
 - b. $2\text{H}_2\text{O}_2 \rightarrow \text{H}_2\text{O} + \text{O}_2$
 - c. $\text{H}_2 + \text{O}_2 \rightarrow \text{H}_2\text{O}_2$
6. The amount of starting material converted into product is determined by _____.
 - a. amount
 - b. yield
 - c. size
7. When a site on the molecule is preferred for a reaction, it is known as _____.
 - a. chemoselectivity
 - b. enantioselectivity
 - c. regioselectivity
8. A synthesis that involves condensation of products of previous reactions is called _____.
 - a. linear synthesis
 - b. convergent synthesis
 - c. multicomponent synthesis
9. Microwaves passing through a sample lead to heating by _____.
 - a. ionization
 - b. collision
 - c. light generation

10. Ultrasounds in organic synthesis provide energy by _____.
a. sun b. heat c. cavitation
11. _____ is an example of a polymer used as catalyst for synthesis reactions.
a. polyethylene glycol b. polyethene c. polyester
12. In retrosynthesis, the steps of synthesis are determined by the structure of _____.
a. reactant b. enzyme c. target molecule
13. In multicomponent synthesis, there is always _____ in entropy.
a. increase b. decrease c. no change
14. Which of the following is a greenhouse gas?
a. oxygen b. nitrogen c. carbon dioxide
15. Prevention is better than _____.
a. cure b. clean-up c. treatment
16. Does a catalyst get consumed in a chemical reaction?
a. yes b. no c. sometimes
17. Products of green synthesis are _____.
a. toxic b. biodegradable c. non-biodegradable
18. Glucose is an example of _____.
a. green reactant b. green solvent c. enzyme
19. Which of the following is a green solvent?
a. liquid Nitrogen b. liquid oxygen c. liquid carbon dioxide
20. Which catalyst does not require protection and deprotection of functional group?
a. chemical catalyst b. biocatalyst c. water

Q.2 A What are substitution reactions? Explain the different types with a suitable example. **08**

Q.2 B Compare and contrast between haemoglobin and myoglobin. **07**

OR

Q.2 C Explain the role of metal ions in biological system. **08**

Q.2 D Describe the significance of metal complexes in medicine. **07**

Q.3 A What are the criteria for ideal synthesis of an organic compound? **08**

Q.3 B What are multicomponent reactions? Explain with suitable examples. **07**

OR

Q.3 C Explain the process of microwave assisted organic synthesis. **08**

Q.3 D Describe the role of polymer support in a synthesis reaction. **07**

Q.4 A Explain green synthesis in the industry. **08**

Q.4 B What is the need for development of green chemistry **07**

OR

Q.4 C What are green reagents? Give suitable examples. **08**

Q.4 D What do you understand by green chemistry? What is its relevance in today's world. **07**

Q.5 Write Short notes on **any three** of the following **15**

- a. Elimination Reactions.
- b. Linear Synthesis.
- c. Selectivity in organic synthesis.
- d. Green materials.
- e. Principles of green chemistry .