

2½ 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 Choose the correct answer: (any fifteen)

1. Identify the reaction which does not come under organic addition type

- a) Hydration
 - b) Dehydration
 - c) Halogenation
 - d) Hydrohalogenation

2. Choose the compound that will react faster in a S_N2 nucleophilic substitution reaction.

- a) $\text{CH}_2-\text{CH}=\text{CH}_2-\text{Br}$ b) $\text{CH}_2 = \text{CH}-\text{CH}_2-\text{Br}$
c) $\text{CH}_2 = \text{CH}-\text{CH}_2-\text{Br}$ d) $\text{CH}=\text{CH}_2-\text{CH}_2-\text{Br}$

3. Which of the following is an essential element in biological system?

- a) Rb b) Ba
c) Mg d) NT

4. What is a co-factor?

 - a) A small enzyme
 - b) A small factor
 - c) An organic molecule or metal ion that helps in enzyme activity
 - d) A molecule that decreases enzyme activity

- ## 5. What are Apo-enzymes?

- a) Enzymes that don't require other molecules to assist in their activity
 - b) Molecules that assist enzymes in their activity
 - c) Inactive enzymes
 - d) Denatured enzymes

14. _____ reaction is an example of ultrasound induced organic synthesis.
- a) Friedal-Craft acylation b) Cannizzaro
c) Reformatsky d) All of these
15. E-factor is the ratio of mass of _____ generated to mass of the _____.
- a) Waste, desired product b) Desired product, waste
c) Desired product, catalyst d) Waste, solvent used
16. The liquid phase air oxidation of p-Cresol produces _____.
- a) p- Nitrobenzaldehyde b) p- Hydroxybenzaldehyde
c) p- Aminobenzaldehyde d) p- Ketobenzaldehyde
17. All _____ reactions are 100% atom economical.
- a) Addition b) Elimination
c) Cleavage d) None of these
18. For the green synthesis of paracetamol the starting compound used is _____.
- a) Steroid b) p- Hydroxyacetophenone
c) Aniline d) O-Nitrophenol
19. Derivatization produces a suitable derivative of an organic compound to _____.
- a) Form radicals b) stop the reaction
c) Protect the functional group d) Increase the reaction rate
20. Glucose is converted to adipic acid which is the raw material for green synthesis of _____.
- a) Cellulose b) Nylon-66
c) Benzaldehyde d) Hydroxy acetoacetate

Q 2 A What are elimination reactions? What are the various mechanisms of elimination? 08

Q 2 B Explain the biological role of carboxypeptidases. 07

OR

- Q 2 C** What are essential elements? Give three examples and their role in biological system. **08**
- Q 2 D** Describe with examples the role of metals in enzyme activity. **07**
- Q 3 A** i. Discuss retrosynthetic analysis of any one compound.
ii. Explain chemoselectivity with an example. **04**
- Q 3 B** Give an account of the criteria for ideal synthesis of organic compounds. **07**
- OR**
- Q 3 C** i. "In a multicomponent organic synthesis, more than two components are involved"- Justify with an example. **04**
ii. Explain diastereoselectivity with an example. **04**
- Q 3 D** Discuss linear and convergent synthesis with the help of examples. **07**
- Q 4 A** i. Discuss the role of green solvent in industry with the help of examples. **04**
ii. Explain the catalytic hydrogenation of nitrobenzene with reaction. **04**
- Q 4 B** Explain any four principle of Green chemistry. **07**
- OR**
- Q 4 C** i. Describe types of green catalysts used in industry. **04**
ii. Give an account of advantages of using green raw materials with an example. **04**
- Q 4 D** Define green chemistry and explain its importance. **07**
- Q 5** Write Short notes on any three of the following **15**
- a Haemoglobin.
- b Addition reactions.
- c Yield of a synthesis.
- d Disconnection in retrosynthesis.
- e Green reagents.