

Reg. No.

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**B.E / B.TECH. DEGREE EXAMINATIONS, MAY 2023**

Second Semester

**CY18251 – ORGANIC CHEMISTRY***(Chemical Engineering)***Regulation 2018A****TIME: 3 HOURS****MAX. MARKS: 100**

Course Outcomes	Statement	RBT LEVEL
CO1	Enables the students to learn the various reaction mechanisms.	2
CO2	Familiarizes the industrially important catalysts.	2
CO3	The synthesise of different types of dyes.	3
CO4	Imparts knowledge on the synthetic utility of organic reagents.	3
CO5	Understanding of thermal method of analysis and chromatographic techniques.	3

**PART- A (10 x 2 = 20 Marks)**

(Answer all Questions)

		CO	RBT LEVEL
1.	Write any two examples for nucleophiles.	1	2
2.	What are rearrangement reactions?	1	2
3.	Compare homogeneous and heterogeneous catalysis.	2	1
4.	Draw the structure of Wilkinson Catalyst.	2	1
5.	Mention any two requisites of a dye.	3	1
6.	What is a vat dye?	3	2
7.	Suggest the characteristics of a synthon.	4	1
8.	What is a multistep synthesis?	4	2
9.	List any two adsorbents used in column chromatography.	5	1
10.	Mention any two applications of gas chromatography.	5	1

**PART- B (5 x 14 = 70 Marks)**

	Marks	CO	RBT LEVEL
11.(a) (i) Deduce a probable mechanism for the Reimer -Tiemann reaction.	(7)	1	3
(ii) Propose a feasible mechanism for Benzoin condensation.	(7)	1	3

- (OR)**
- (b) (i) Write a note on crossed Aldol condensation. (7) 1 3  
(ii) Propose a suitable mechanism for the Beckmann rearrangement. (7) 1 3
- 12.(a) (i) Elucidate the Diels-Alder reaction with an example. (7) 2 4  
(ii) Outline the role of sonocatalysts in hydrogenation reactions. (7) 2 4
- (OR)**
- (b) Describe the Sharpless epoxidation and list any two industrial applications. (14) 2 4
- 13.(a) (i) Explain the Witt's theory of colour and constitution. (7) 3 3  
(ii) Write the synthesis and uses of Congo red. (7) 3 3
- (OR)**
- (b) (i) Discuss the synthesis and uses of Malachite green. (7) 3 3  
(ii) Outline the synthesis and uses of Fluorescein. (7) 3 3
- 14.(a) Discuss any four synthetic utility of Grignard reagent. (14) 4 4
- (OR)**
- (b) Explain any four synthetic utility of diethyl malonate. (14) 4 4
- 15.(a) (i) Explain the thermo gravimetric analysis of calcium oxalate monohydrate. (7) 5 3  
(ii) Write a note on Electrophoresis. (7) 5 3
- (OR)**
- (b) Elaborate the principle and instrumentation of High Pressure Liquid Chromatography (HPLC). (14) 5 3

**PART- C (1 x 10 = 10 Marks)**

(Q.No.16 is compulsory)

- |   | Marks | CO | RBT<br>LEVEL |
|---|-------|----|--------------|
| 16. Evaluate the mechanism of Friedel Craft alkylation. | (10)  | 1  | 5            |

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