SHRI RAMSWAROOP MEMORIAL UNIVERSITY

End Semester Examination (2021-22)-Odd Semester

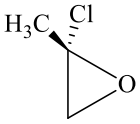
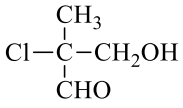
M.Sc. (Chemistry) I Year (I Sem)	
Course Name: Organic Chemistry-I	**Code: MCY1002**
Time: 02 Hours	**Max Marks: 60**

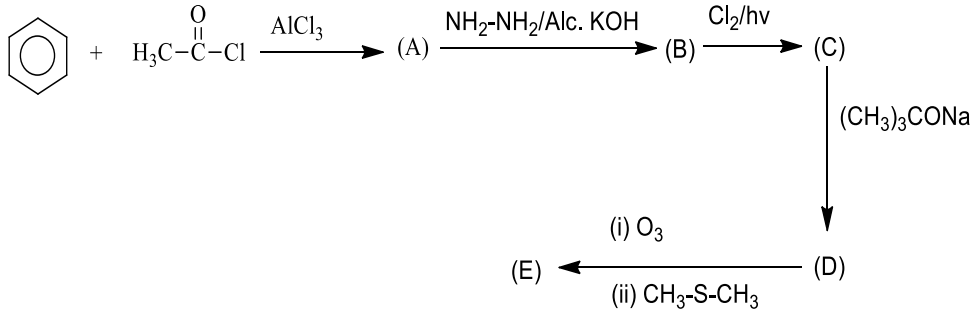
University Roll No.															
(To be filled by the Student)															

Note: Please read instructions carefully:

a) The question paper has 03 sections and it is compulsory to attempt all sections.

b) All questions of Section A are compulsory; questions in Section B and C contain choice.

Section A: Very Short Answer type Questions **Attempt all the questions.**		**BL**	**CLO**	**Marks (10)**
1.	What are alternant and non-alternant hydrocarbons?	BL1	CLO1	02
2.	Show the absolute configuration (R/S) of the stereogenic center in the following molecules:  I  II	BL2	CLO2	02
3.	Explain Prelog's rule with an example.	BL2	CLO3	02
4.	What are carbenes? Name any reaction which involves generation of carbene.	BL1	CLO2	02
5.	Explain why the bromination of toluene is five times faster than that of t-butylbenzene?	BL2	CLO5	02
Section B: Short Answer Type Questions **Attempt any 03 out of 06 questions.**		**BL**	**CLO**	**Marks (30)**
1.	Construct the molecular orbital diagram of allyl system by the use of perturbation molecular orbital theory.	BL3	CLO1	10
2.	Discuss structure and generation of benzynes.	BL2	CLO2	10
3.	Explain enantiotopic and diastereotopic atoms using suitable examples.	BL2	CLO3	10
4.	Illustrate the sterochemistry of spiranes.	BL3	CLO2	10
5.	Predict the product of the following reactions: (i) Reaction of toluene with mixture of conc. HNO_3 and conc. H_2SO_4 (ii) Reaction of benzene with isopropyl alcohol using BF_3 at 60°C	BL3	CLO5	10
6.	Describe the preparation of nitrenes. Also discuss their structure, stability and character.	BL2	CLO1	10

Section C: Long Answer Type Questions/Case Study Attempt any 01 out of 03 questions.		BL	CLO	Marks (20)
1.	With the help of suitable examples, illustrate the effect of angle strain, torsional strain, steric strain and intramolecular H-bonding on the stability of conformations.	BL4	CLO4	20
2.	Explain the following: (i) Aromatic character of annulenes (ii) Secondary isotope effect (iii) Hammond postulate	BL5	CLO5	20
3.	Identify 'A', 'B', 'C', 'D', and 'E' in the following reaction sequence: 	BL3	CLO5	20
