

5. (a) Write the mechanism involved in any **three** of the following reactions :

- (i) Wagner-Meerwein rearrangement
- (ii) Oxidation with HIO_4
- (iii) Hydroboration-oxidation of alkenes
- (iv) OsO_4 oxidations.

(b) What is Claisen condensation ? Explain the mechanism of the reaction.

(c) Write the stoichiometric equation and mechanism for reduction of ketones with lithium aluminium hydride. 60

6. (a) Identify the compound 'B' on the basis of following spectral data and give proper interpretation of the data :

'B' Molecular weight M^+ 102, m/z 77, 76, 51, 50.

IR ν max cm^{-1} 3300, 3085, 3040, 2110, 1605, 1580, 1490, 1450, 760, 685.

^1H NMR δ 2.98 (s, 1H), 7.40(m, 5H)

(b) Explain the applications of Raman spectra.

(c) What is spin-spin coupling ? Explain the use of coupling constant (J). 60

Total No. of Printed Pages : 4

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Chemistry-II

(05)

Time : Three Hours

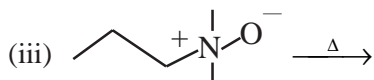
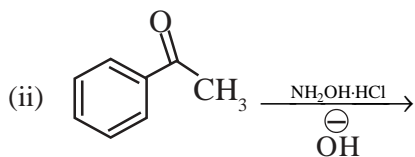
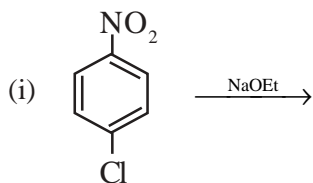
Maximum Marks : 300

INSTRUCTIONS

- (i) Answers must be written in English.
- (ii) The number of marks carried by each question is indicated at the end of the question.
- (iii) The answer to each question or part thereof should begin on a fresh page.
- (iv) Your answers should be precise and coherent.
- (v) The part/parts of the same question must be answered together and should not be interposed between answers to other questions.
- (vi) Candidates should attempt any **five** questions.
- (vii) If you encounter any typographical error, please read it as it appears in the text book.
- (viii) Candidates are in their own interest advised to go through the General Instructions on the back side of the title page of the Answer Script for strict adherence.
- (ix) No continuation sheets shall be provided to any candidate under any circumstances.

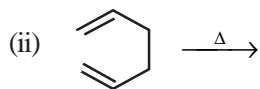
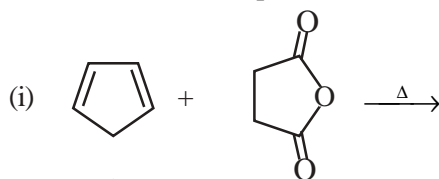
- (x) Candidates shall put a cross (X) on blank pages of Answer Script.
- (xi) No blank page be left in between answer to various questions.

1. (a) Write two methods for the preparation of free radicals and formulate two reactions involving them.
- (b) Predict the products in any **two** of the following reactions and explain their mechanism of formation.



- (c) Write the mechanism of E2 reaction. 60

2. (a) Write the structure of the products in the following reactions and offer suitable explanation for their formation :



OR

Write the Woodward-Hofmann rule for per cyclic reactions.

- (b) Formulate the mechanism of the following reactions :

(i) Perkin reaction

(ii) Cannizzaro reaction

(iii) Dieckmann reaction. 60

3. (a) Describe the process of Nylon preparation.

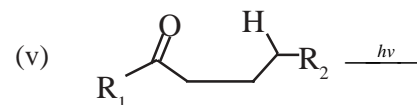
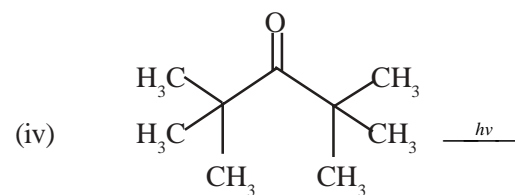
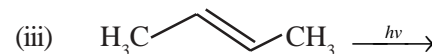
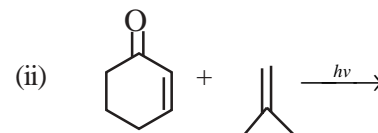
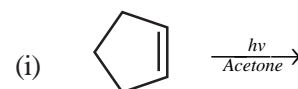
- (b) Answer any **two** of the following :

(i) Use of Ziegler-Natta catalyst in polymerization.

(ii) Viscosity of polymers

(iii) Preparation of polyvinyl chloride. 60

4. What are the products of the following reactions ? Explain their formation.



60