



ATTEMPT THIS PAPER ON THIS QUESTION SHEET ONLY.

Division of marks is given in front of each question.

This Paper will be collected back after expiry of time limit mentioned above.

Q.1. Encircle the correct choice.

(10x1=10)

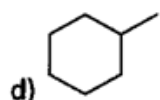
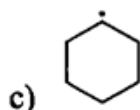
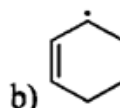
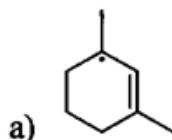
D) Which reagents are used in Corey-Kim oxidation reaction?

- a) NSC, DMS, Et₃N
- b) (COCl)₂, DMSO, Et₃N
- c) SO₃.Pyridine, DMSO
- d) CrO₃, H₂SO₄, Acetone

II) $\text{PhNO}_2 \xrightarrow{\text{Sn/HCl, heat}} ?$

- a) PhNHOH
- b) PhNH₂
- c) PhN=NPh
- d) PhNH-NHPh

III) Which one the following is least stable radical?



IV) A strong signal around 2225 cm⁻¹ in an IR spectrum indicates

- a) Ester
- b) Nitrile
- c) Ketone
- d) Amine

V) Propan-2-one on reaction with NaBH₄ would give?

- a) Ethanol
- b) Propan-2-ol
- c) 2-Methylpropan-2-ol
- d) Propan-1-ol

- VI)** Cyclohexanone would react with hydrazine and KOH at 200 °C to yield?
- Cyclohexane
 - Cyclohexanol
 - Cyclohexenone
 - Cyclohexene
- VII)** Visible spectroscopy frequency range is?
- 200 – 400 nm
 - 200 – 400 cm^{-1}
 - 400 – 800 cm^{-1}
 - 400 – 800 nm
- VIII)** Which of the following bonds is most likely to break homolytically?
- H-Br
 - C-Br
 - Br-Br
 - C-H
- IX)** Benzyl alcohol would react with $(\text{COCl})_2$, DMSO and Et_3N to give?
- Acetophenone
 - Benzaldehyde
 - Benzoic acids
 - Toulene
- X)** Which spectroscopy is used to detect functional groups?
- Infra Red
 - UV/Vis.
 - NMR
 - Mass



ATTEMPT THIS (SUBJECTIVE) ON THE SEPARATE ANSWER SHEET PROVIDED

Q.2. Answer the following questions.

(5x4=20)

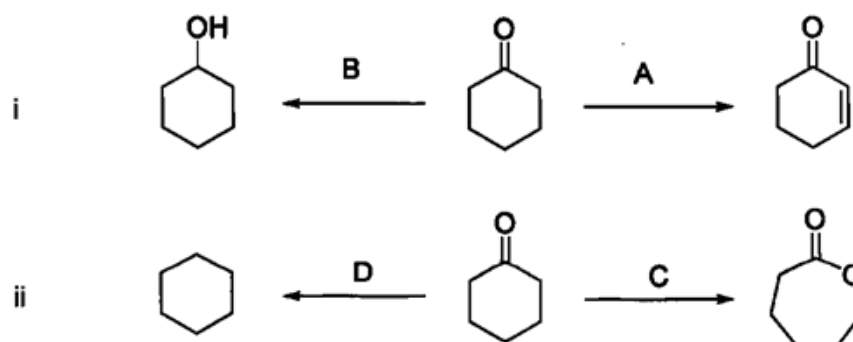
- I) Explain Swern oxidation, give mechanism and example for oxidation of primary alcohols.
- II) Write a short note on Birch reduction of benzaldehyde and methoxybenzene.
- III) Describe two synthetic applications of free radicals.
- IV) Describe types of vibration in IR spectroscopy.
- V) Give four reactions with reagents to reduce aldehydes or ketones to hydrocarbons.

Q. No. 3.

- I) Write a short note on ozonolysis of alkenes with mechanism and examples. [5]
- II) Describe hydroboration of alkenes to yield alkanes and alcohols. [5]

Q. No. 4. Complete the following reactions and draw their mechanisms.

[2 × 5 = 10]



Q. No. 5. A) Write a note on applications of UV/Vis. spectroscopy.

[5]

B) Give different methods for the generation of free radicals.

[5]