(*ii*) Sharpless Asymmetric Epoxidation

(*iii*) Describe E_1, E_2 and E_1CB reactions and explain why E_2 reaction is most common elimination reaction among E_1, E_2 and E_1CB?

5. (*a*) (*i*) Explain Hydroboration oxidation reaction of alkenes and alkynes. Explain with suitable examples. 7

(*ii*) Give the use of following reagents as oxidising agents in organic synthesis : 3 + 3 + 3

(*a*) PCC

(*b*) Jones reagent

(*c*) $LiAlH_4$

Or

(*b*) (*i*) What is homogeneous hydrogenation reaction? Explain with suitable examples. 7

(*ii*) Give synthetic application of the following reagents : 3 + 3 + 3

(*a*) Thallium (III) nitrate

(*b*) DMSO

(*c*) $KMnO_4$

M.Sc.–Chem-IIs (406)

2017

Time : 3 hours

Full Marks : 80

The figures in the right-hand margin indicate marks

Answer from both the Section as directed

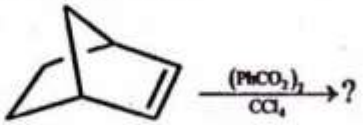
(ORGANIC CHEMISTRY-II)

SECTION-A

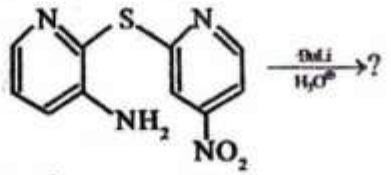
1. Answer any *four* of the following : 4 × 4

(*a*) What is SE_1 reaction? Explain it with suitable examples.

(*b*) Outline the mechanism of the following free radical addition reaction.

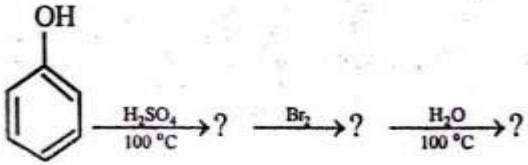


(*c*) Write the product of the reaction with mechanism.



(*ii*) Explain *IPSO* attack in aromatic electrophilic substitution reaction. 4

(*iii*) Complete the sequence of the following reaction : 4



Or

(*b*) Write note on : 4 + 4 + 4 + 4

(*i*) Vilsmeir-Hack Reaction

(*ii*) Hoesch Reaction

(*iii*) Reimer-Tiemann Reaction

(*iv*) Friedel-Crafts Reaction.

3. (*a*)(*i*) What is Von-Richter rearrangement ? Explain with mechanism. 8

(*ii*) What is Free radical ? Describe its general characteristics and free radical reaction mechanism. 8

Or

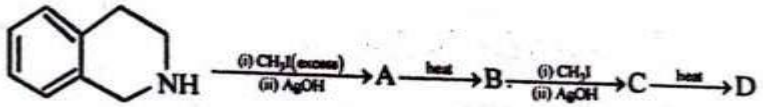
(*b*) Write notes on : 6 + 5 + 5

(*i*) Smiles Rearrangement

(*ii*) Kochi Reaction

(*iii*) Sommelet-Hauser Rearrangement.

4. (*a*)(*i*) Assign A to D in the given reaction sequence : 8



(*ii*) Write notes on : 8

(*a*) Pyrolysis of Xanthate Ester

(*b*) Cope Elimination.

Or

(*b*) Write short notes on : 16

(*i*) Michael Addition