

Total No. of Questions :5]

SEAT No. :

[Total No. of Pages :4

P589

[5315] - 6

F.Y.B.Sc.

CHEMISTRY - II

Organic and Inorganic Chemistry

(2013 Pattern) (Paper - II)

Time : 3 Hours]

[Max. Marks :80

Instructions to the candidates:

- 1) All questions are compulsory.*
- 2) Draw neat diagrams wherever necessary.*
- 3) Figures to the right indicate full marks.*

Q1) Answer the following:

[16]

- a) Explain the following terms.
 - i) Assymmetric centre
 - ii) Laevo rotatory.
- b) Define:
 - i) Bond energy
 - ii) Enantiomers
- c) Draw zig-zag structures for the following compounds:
 - i) Isopropyl alcohol
 - ii) n-hexane.
- d) Methylamine is stronger base than Ammonia. Explain.
- e) Benzaldehyde does not undergo Aldol condensation reaction. Explain.

P.T.O.

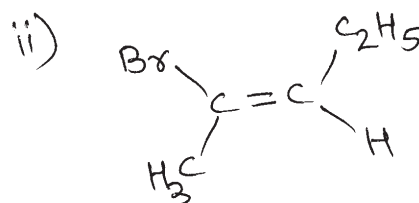
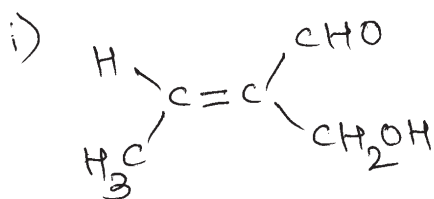
- f) Alkaline earth metals show +2 oxidation states. Explain
- g) Give the statements of Hund's rule and Pauli's Exclusion principle.
- h) Define Interhalogen compounds with suitable examples.

Q2) Attempt Any Four of the following. **[16]**

- a) Discuss conformational isomerism in n-butane with energy profile diagram.
- b) What is steric effect? N, N-dimethyl aniline is a weaker base than 2,6-dimethyl N, N - dimethyl aniline. Explain.
- c) What are alcohols? How will you prepare ethyl alcohol from,
 - i) Formaldehyde
 - ii) Ethylene.
- d) What are carboxylic acids? How will you prepare Acetic acid from,
 - i) Acetonitrile
 - ii) Solid CO₂
- e) What are alkenes? How will you prepare cis-2-butene and trans-2-butene from 2-butyne.
- f) What is Friedel-Crafts alkylation reaction? Discuss its limitations.

Q3) Attempt any four of the following. **[16]**

- a) What are amines? How are they classified? How will you prepare ethylamine from methyl cyanide.
- b) What are alkyl halides? Discuss any two methods of preparation of alkyl halides.
- c) What are phenols? How will you prepare salicylaldehyde from phenol.
- d) What is hybridisation? Discuss formation of methane molecule using the concept of hybridisation.
- e) Assign 'E' or 'Z' configuration of the following compounds.

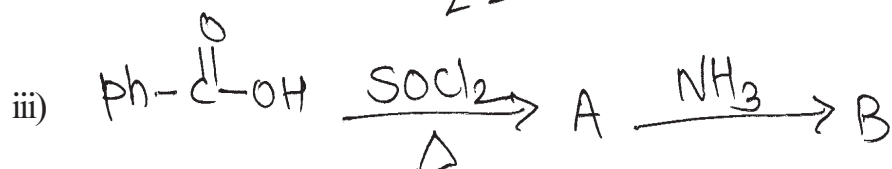
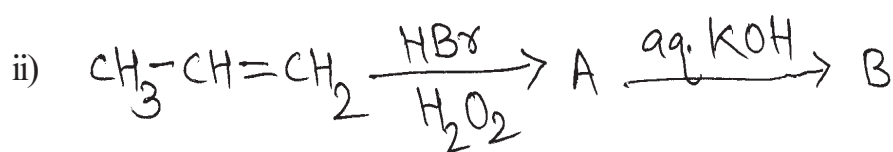
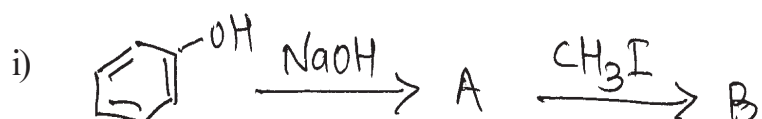


- f) Write short notes on,
- Cannizzaro reaction.
 - Clemmensen reduction.

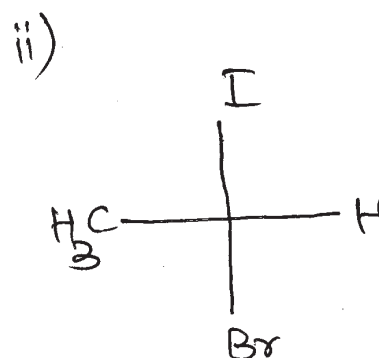
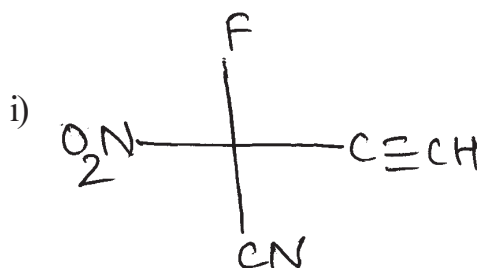
Q4) Attempt any four of the following.

[16]

- a) Identify the products A and B and rewrite the reactions (any two)



- b) Assign 'R' or 'S' configuration of the following compounds.



- c) What are alkynes? How is acetylene obtained from
- Calcium carbide.
 - Methane.
- d) What is Inductive effect? Explain +I and -I effects with suitable examples why Acetic acid is weaker than formic acid.
- e) Lithium shows anomalous behaviour in the family of alkali metals. Explain.
- f) Write note on 'Silicates'

Q5) Attempt any four of the following.

[16]

- a) Give the names, symbol, atomic number and electronic configuration of Group II A elements.
- b) What are the similarities of hydrogen with halogen elements?
- c) Explain bonding & shape of IF₅ molecule.
- d) Oxygen shows anomalous behaviour in Group IV A elements. Explain.
- e) Give different applications of alkali metals and their compounds.
- f) Draw the structures of
 - i) Al₂Br₆
 - ii) BrF₅
 - iii) ClF₃
 - iv) H₂SO₄

