

Total No. of Questions : 5]

SEAT No. :

[Total No. of Pages : 5

P503

[4917]-106

F.Y. B.Sc.

CHEMISTRY

**Organic and Inorganic Chemistry
(2013 Pattern) (Paper-II) (Theory)**

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) Chirality
 - ii) Specific rotation
- b) What is bond angle? Explain with suitable examples.
- c) Draw zig - zag structures for the following compounds
 - i) Butanal
 - ii) Glycine
- d) Carbontetrachloride is nonpolar molecule.Explain.
- e) M.P and B.P. of amines are lower than those of alcohol of comparable molecular weight.Explain.
- f) Alkali metals show +1 oxidation state. Explain.
- g) Write the names and electronic configuration of group III A elements.
- h) What are metalloids?

P.T.O.

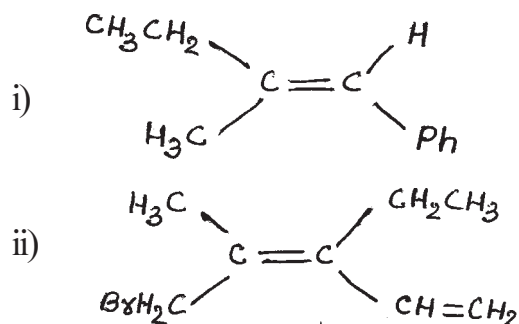
Q2) Attempt any four of the following: **[16]**

- a) What is inductive effect? Explain why chloroacetic acid is stronger acid than acetic acid.
- b) What are carboxylic acids? What is the action of following reagents on acetic acid?
 - i) $\text{C}_2\text{H}_5\text{OH}/\text{H}^+$
 - ii) NH_3/Δ
- c) What is conformational isomerism? Discuss conformational isomerism in propane with energy profile diagram.
- d) What are alcohols? Give classification of alcohols. How will you prepare ethyl alcohol from acetaldehyde?
- e) What are aromatic compounds? Discuss Huckel's Rule of aromaticity with examples.
- f) What are alkanes? How will you prepare propane from.
 - i) 2-bromo propane
 - ii) propene

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

- a) What are amines? How are they classified? How will you prepare ethyl amine from acetonitrile.
- b) What are alkyl halides? How will you prepare ethyl bromide from-
 - i) ethanol
 - ii) ethylene

c) Assign E and Z configuration of the following compounds.



d) What are alkenes? How will you prepare ethylene from

- ethanol
- ethyl bromide

e) How will you prepare acetone from 2- propanol?

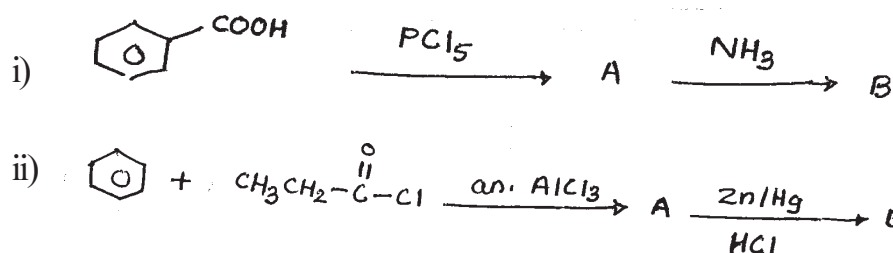
what is the action of following reagents on acetone?

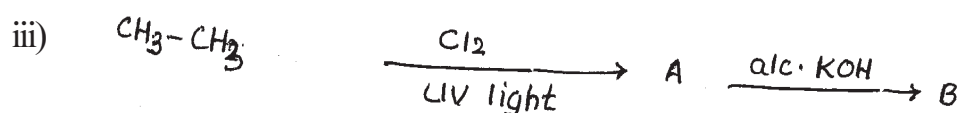
- methyl magnesium bromide
 - NaOH/I_2
- f) What is hybridisation? Discuss formation of acetylene molecule using the concept of hybridisation.

Q4) Attempt any four of the following :

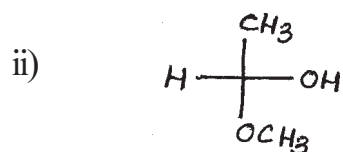
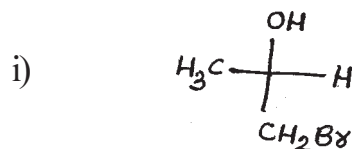
[16]

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 is mesomeric effect? Explain why cyclohexylamine is stronger than aniline.

d) write short notes on:

i) ozonolysis

ii) tautomerism

e) Draw the structures of 12-crown-4 and 15-crown-5

Explain their use in separation of alkali metals.

f) Write note on allotropes of carbon

Q5) Attempt any four of the followong:

[16]

- a) Explain anomalous behaviour of oxygen in group VI A elements.
- b) Explain bonding and shape of ClF_3 molecule.
- c) Name the elements of nitrogen family, write their electronic configuration and discuss the trends in the atomic size and electronegativity.
- d) Explain periodicity in properties of alkali metals with respect to ionization energy and oxidation states.
- e) Give different applications of alkaline earth metals and their compounds.
- f) Explain the diagonal relationship between beryllium and aluminium.

