

- NOTE: i) All the questions are compulsory.
ii) Figures to right indicate full marks.
iii) Use of non-programmable calculator / log table is allowed.

Q.1. Answer the following questions (any four)

[20]

- A) Write a note on classification of elements into s,p,d,f- block on the basis of electronic configuration.
- B) Explain Effective Nuclear charge and Screening effect.
- C) Define ionization enthalpy and factors affecting the magnitude of enthalpy of ionization.
- D) Write a note on covalent bond.
- E) Distinguish between ionic bond and covalent bond.
- F) Write down Lewis dot structure for following molecules: a) CH_4 b) BF_3
- G) Explain Bohr's Theory.
- H) Write down geometry of following molecules: a) BCl_3 b) SF_6

Q.2. Answer the following questions (any four)

[20]

- A) Explain sp^2 -hybridisation of carbon atom in detail.
- B) Define the following terms: a) inductive effect b) electromeric effect c) hyper conjugation d) resonance e) hybridisation.
- C) Distinguish between hyper conjugation and resonance.
- D) Explain inductive effect in detail.
- E) Explain sp^3 -hybridisation of oxygen atom in detail.
- F) Distinguish between inductive effect and electromeric effect.
- G) Distinguish between sigma bond and pi bond present in organic compound.
- H) Explain sp^2 -hybridisation of oxygen atom in detail with suitable example.

Q.3. Answer the following questions (any four)

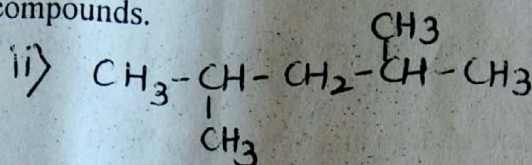
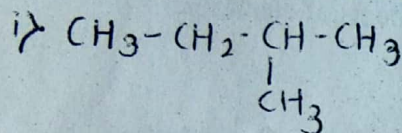
[20]

- A) Write down factors affecting stability of carbocation.
- B) Describe the various methods of formation of free radical.
- C) What is carbanions? Explain shape and structure of carbanions.
- D) Explain homolytic fission and heterolytic fission.
- E) Explain shape and structure of free radical
- F) Explain acid and base on the basis of Lewis concept.
- G) Explain stability of carbocation on the basis of: a) inductive effect b) resonance c) hyperconjugation.
- H) Write down structure of following compounds.
 - a) 3-Chloro butane b) Ethanal c) Methanamide d) 3-pentene
 - d) Propanenitrile

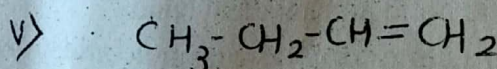
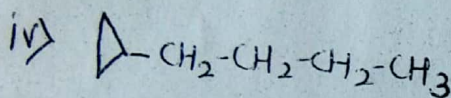
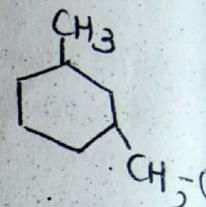
Q.4. Answer the following questions (any three)

[15]

- A) Write a note on electrophile and nucleophile.
B) Write a note on Drawbacks of Rutherford's atomic model.
C) Explain ionic bond in detail.
D) Explain sp^3 -hybridisation of carbon atom in detail with suitable example.
E) Give IUPAC names of following compounds.



iii)



- F) Explain sp^3 -hybridisation of nitrogen atom in detail.
