

**2024(Backlog)**  
**(Session : 2022-26)**

*Time : 3 hours*

*Full Marks : 75*

*Candidates are required to give their answers in their own words as far as practicable.*

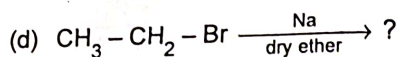
*The figures in the margin indicate full marks.*

*Answer from both the Groups as directed.*

**Group – A**

**(Compulsory)**

1. Answer the following questions :  $1 \times 5 = 5$
- (a) What is nodal plane ?
  - (b) Write the general electronic configuration of S-Block elements.
  - (c) What are Nucleophiles ?



(e) State first law of thermodynamics.

2. Discuss Bohr's theory and its limitations. 5  
3. Describe the Inductive effect. 5

#### Group – B

Answer any four questions of the following :

4. (a) Describe Ionic Bonding and its characteristic features. What is Fajan's rule? 10  
(b) Write shape of  $\text{PCl}_5$  and  $\text{NH}_3$  on the basis of VSEPR theory. 5  
5. Discuss Crystal Field Theory (CFT) and crystal field Stabilization energy and factors affecting it. 10+5 = 15  
6. Write short notes on any three of the following : 5×3 = 15  
(a) Resonance and Resonance energy  
(b) Wurtz reaction

WS – 2/3

(2)

Contd.

(c) Huckel's rule

(d) Markownikffu's rule

7. What are  $\text{SN}^1$  and  $\text{SN}^2$  reactions ? Discuss alimination in alkyl halides and Saytzeff's rule.

10+5 = 15

8. (a) Describe postulates of kinetic theory of gases.  $7\frac{1}{2}+7\frac{1}{2} = 15$

(b) What is Order and Molecularity of reactions ?

9. Write short notes on any three of the following :

5×3 = 15

- (a) Le-Chatelier's principle  
(b) Half-life of a reaction  
(c) Catalyst and how it affect the rate of reaction  
(d) Bond energy and its calculation



WS – 2/3 (300)

(3)

FYUGP(II) — Chem  
(IRC – 2)