

2024
(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 all of the following questions : $1 \times 5 = 5$
- (a) Write shape of P atomic orbital.
- (b) Write down the electronic configuration of Cr.
- (c) $\text{CH}_3 - \text{CH} = \text{CH}_2 \xrightarrow{\text{HCl}} ?$
- (d) CH_3^\ominus is a / an _____. (Electrophile / Nucleophile)

(e) Arrange the following in increasing order of electronegativity. C, O, N and F.

2. Discuss the Bohr's atomic theory. 5
3. Write short note on Inductive effect. 5

Group – B

Answer any **four** questions of the following :

4. (a) Explain the valence Bond theory. 8
- (b) Discuss the characteristic features of ionic compounds. 7
5. Discuss any **three** of the following : $5 \times 3 = 15$
- (a) Crystal field theory
- (b) VSEPR theory
- (c) Variable valency and colour of transition elements
- (d) Nodal plane
6. Describe any **three** of the following : $5 \times 3 = 15$
- (a) Resonance and Resonance effect
- (b) Huckel's rule
- (c) Wurtz reaction

BK – 30/3

(2)

Contd.

(d) SN^1 and SN^2 reactions

(e) Preparation of Alkenes from Alkyl halides and Alcohols

7. (a) What is Markownikoff's rule? 5
- (b) Discuss any **two** of the following : 10
- (i) Ozonolysis
- (ii) Hydroboration-oxidation
- (iii) Friedel-Craft reactions
8. (a) Discuss the Laws of thermodynamics. 8
- (b) Explain Le-Chatelier's principle. 7
9. (a) What are different postulates of kinetic theory of gases? 5
- (b) Discuss any **two** of the following : 10
- (i) Order and Molecularity of Reaction
- (ii) Deviation from ideal behaviour and van der Waal's equation
- (iii) Activation energy and Arrhenius equation

BK – 30/3 (1,100)

(3)

FYUESE(II) —
Chem (IRC – 2)