

22229

21718

3 Hours / 70 Marks

Seat No.

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- Instructions* – (1) All Questions are *Compulsory*.
(2) Answer each next main Question on a new page.
(3) Figures to the right indicate full marks.
(4) Mobile Phone, Pager and any other Electronic Communication devices are not permissible in Examination Hall.
(5) Abbreviations used, convey usual meaning.

Marks

1. **Attempt any FIVE of the following:** **10**
- Define an 'atom'. Name a gas, which is 'diatomic' and 'triatomic'.
 - Define 'bond energy'. State its 'effect' on stability of a compound.
 - Define 'empirical formula' and 'molecular formula'.
 - Write 'hydrogenation' reaction of benzene, and state the type of catalyst and temperature condition.
 - Name the organic acid, containing both carboxylic group and a hydroxy group also write its structural formula.
 - Define the term: 'asymmetric carbon'.
 - Define a 'diene'. Name and write structural formula of a diene.

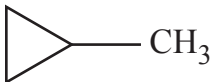
P.T.O.

- 2. Attempt any THREE of the following:** **12**
- a) Explain the formation of a 'co-ordinate bond' with suitable example.
- b) Distinguish between aliphatic and aromatic compounds with respect to their general characteristics.
- c) Explain the 'halogenation of benzene' with reactions.
- d) (i) Define 'functional group' 1
(ii) Name and write structural formula of any one compound, containing group: 3
- 1) secondary amine,
2) amide
3) tertiary hydroxy
- 3. Attempt any THREE of the following:** **12**
- a) (i) Define an 'ion'. 1
(ii) Write 'alkali series' and 'halogen series'. 2
(iii) Name the most electronegative and the most electropositive element. 1
- b) Explain 'mechanism' of 'friedel-craft' acylation.
- c) Explain the formation of formula for functional groups with carbon.
- d) (i) Define 'isomerism'? 1
(ii) Explain with an example, 'in-trans' isomerism. 3

	Marks
4. Attempt any <u>THREE</u> of the following:	12
a) (i) Define 'reversible reaction'.	1
(ii) Explain the ways to 'drive' the reaction in 'forward direction'.	3
b) Explain the term 'bond length'. State factors on which it depends. Compare bond lengths of carbon - carbon multiple bond and carbon - carbon - single bond.	
c) Explain the mechanism of 'sulphonation' reaction of 'benzene'.	
d) Explain the 'formation' of 'phenolic resin' as used in 'moulding powder' with chemical reactions.	
e) Write chemical name of 'tartaric acid'. Describe 'isomerism' shown by it.	
5. Attempt any <u>TWO</u> of the following:	12
a) (i) Describe 'Kekule's' structure of benzene.	4
(ii) Explain 'Huckel rule'	2
b) (i) Define and give an example of 'monomer'.	1
(ii) 'Polyvinyl alcohol' is available in two grades based on its. 'Water solubility'. 'Explain' it in terms of degree of hydrolysis of polyvinyl acetate.	5
c) (i) Compare behaviour on 'heating' - of benzene and Polyethylene.	
(ii) Explain 'solubility' of 'Polyethylene' based on its 'Chemical nature'.	

6. Attempt any TWO of the following:

12

- a) (i) Write 'rules for nomenclature of alkanes'.
- (ii) Write normal name and IUPAC name of any three of the following:
- 1) $\text{CH}_3 - \text{O} - \text{CH}_2 - \underset{\begin{array}{c} | \\ \text{CH}_3 \end{array}}{\text{CH}} - \text{CH}_3$
 - 2) $\text{CH}_3 - \text{CH} = \text{CH} - \underset{\begin{array}{c} \text{O} \\ || \end{array}}{\text{C}} - \text{H}$
 - 3) 
 - 4) $\text{CH}_3\text{CH}_2\text{Br}$
- b) (i) Write 'Carother's limiting equation', in usual notation. 1
- (ii) Explain effect of functionality on: 5
- 1) Polymer processing
 - 2) Polymer structure and
 - 3) Properties in general
- c) (i) Why are monomers supplied in 'inhibited form'? Name two inhibitors used and level of inhibition. 2
- (ii) Describe a 'method of purification' of styrene. 4
