

QP Code : 780100

(2 ½ Hours)

[ Total Marks :75

- N.B. :
- (1) All questions are compulsory.
  - (2) All questions carry equal marks.
  - (3) Figures to the right indicate marks.
  - (4) Draw neat labelled diagrams wherever necessary.
  - (5) Use of log table and non-programmable calculators is allowed.

1. Do as directed : (any fifteen)

15

State the IUPAC name :

- (1)  $C_7H_{16}$
- (2)  $CH_3Cl$
- (3)  $CH_3-CH=CH-CH_3$
- (4)  $C_3H_7COOH$
- (5)  $CH_2OH-CHOH-CH_2OH$
- (6)  $(CH_3-CH_2)_3N$
- (7)  $CH_3-CH_2-CH_2-CO-CO-CH_3$

Explain the terms

- (8) Crystal Structure
- (9) Ionic bond
- (10) Octet rule
- (11) Dipole
- (12) Hydrogen bond
- (13) Lewis Acid
- (14) Normality

Give an example of

- (15) Body central cube
- (16) Planar arrangement
- (17) One of the following is showing relation between pH and pOH.  
(a)  $pH/pOH = 14$       (b)  $14-pH = pOH$   
(c)  $pH \times pOH = 14$       (d)  $14/pOH = pH$

(18) The property of water whereby molecules tend to stick to one another is called as \_\_\_\_\_.

(19) Water has a high surface tension-True or False .

(20) Which one of the following is buffer solution :

- (a)  $NaCl/HCl$       (b)  $H_3CCOOH/CH_3COONa$
- (c)  $K_2SO_4/H_2SO_4$       (d)  $NH_4OH/KOH$

[TURN OVER]

2. (a) Draw structures of the following organic compounds. 8  
 (i) Methoxy methane  
 (ii) 2 chloro Propanamine  
 (iii) Chlorobenzene  
 (iv) 1-butanol
- (b) Listing suitable examples, Explain simple and mixed ether. 7  
**OR**
- (c) Draw structures of the following organic compounds. 8  
 (i) 2- pentanol  
 (ii) Bromocyclo pentane  
 (iii) Ethoxy Ethane  
 (iv) Methanamide
- (d) Discuss IUPAC nomenclature of carboxylic acid and dicarboxylic acid. 7
3. (a) State the conditions of a Lewis dot Structure in a covalent bond formation. 8  
 Draw the dot cross structure of  $\text{CH}_4$ .
- (b) Explain on the basis of hydrogen bonding, solubility of ethanol in water. 7  
**OR**
- (c) Compare and contrast between covalent and ionic bond. 8  
 (d) Enlist the characteristics of chemical bonds. 7
4. (a) Derive the relationship between pH and pOH and calculate the concentration of  $\text{H}^+$  ion of a solution having pH 6.45. 8  
 (b) Explain the role of water in bimolecular structure. 7  
**OR**
- (c) Discuss properties of water and calculate amount of sodium hydroxide required in grams to prepare 700 ml of 0.25 molar solution of sodium hydroxide. (given molar mass of  $\text{NaOH}=40$ ) 8  
 (d) Define Buffer solution, give its types with example and mechanism of action of Basic buffer. 7
5. Write short notes on **any three** of the following :- 15  
 (i) Nomenclature of coordination compounds  
 (ii) Cyclic hydrocarbons  
 (iii) Nature of coordinate bond  
 (iv) Lattice structure of water  
 (v) Applications of buffer solutions