

2nd Sem. / COMMON / 2022(S)

Th2 ENGINEERING CHEMISTRY

Full Marks: 80

Time- 3 Hrs

Answer any five Questions including Q No.1& 2
Figures in the right hand margin indicates marks

1. Answer **All** questions 2 x 10
- a. Define Flux. Give an example of Acidic Flux.
 - b. Calculate the pH of 0.001M KOH solution.
 - c. What are the characteristics for a compound to be Aromatic?
 - d. What causes permanent hardness in water?
 - e. Write down any one difference between Double salt & Complex salt. Give an example of each.
 - f. Find out the Conjugate Base of HPO_4^{2-} .
 - g. Write down the electronic configuration of Cr & Cu.
 - h. Define isotope with an example.
 - i. Calculate the equivalent weight of CH_3COOH & $\text{Al}_2(\text{SO}_4)_3$.
 - j. Write down the general formula for Alkene series. What is the first member of alkene family?
2. Answer **Any Six** Questions 5 x 6
- a. Differentiate between Calcination & Roasting.
 - b. Write down the composition & uses of Bronze & Duralumin.
 - c. Differentiate between Saturated & Unsaturated Hydrocarbons.
 - d. Explain the Hot lime Soda method of softening of hard water.
 - e. Define Corrosion. Explain waterline Corrosion.
 - f. Write down the Structural formula & IUPAC name of the following:-
 - i) 2,3- dibromo -1,4-dichloro - but-2- ene
 - ii) 5 - iodo - 4,4,5-trichloro - hex-2- ene
 - iii) 1,1,2,2-tetrafluoro ethene
 - iv) $\text{CH}_3\text{CH}(\text{OH})\text{C}(\text{Br})\text{C}(\text{CH}_3)\text{CH}_3$
 - v) $\text{CH}\equiv\text{C}-\text{CH}=\text{CH}_2$
 - g Explain the Froth floatation method with a labelled diagram.

- 3 Make a comparative study of Arrhenius Theory & Bronsted-Lowry Theory of acids & bases. 7
Write down the limitations of Arrhenius Theory of acids & bases. 3
- 4 (a) Differentiate between Thermoplastic & Thermosetting polymers with examples. 5
(b) How is Polyvinyl Chloride prepared? What are its uses? 5
- 5 (a) State and explain Faraday's first law of electrolysis. 5
(b) How many grams of NaOH is required to prepare 4L of its solution having pH 10. 5
- 6 Explain the Bohr's model of atomic structure. What are the drawbacks of this model? 7+3
- 7 (a) What are the conditions for a fuel to be a good fuel? 5
(b) What are Bio-fertilizers? Write Uses of various Bio-fertilizers. 5