I- SEMESTER - COMMON /2019/ (New)

TH-2(b)-ENGINEERING CHEMISTRY

Full Marks: 80

Time : 3 Hours

Answer any FIVE Questions including Q No. 1 & 2

Figures in the right hand margin indicates marks

1.	Answer ALL questions: (a) What is (n+l) rule? Arrange 3d, 4s, 4p & 5s in order of their increasing energy. (b) Draw the lewis structure of methane. What is the structure and bond angle of it? (c) What do you mean by amphoteric substance? Give an example of it. (d) Calculate the Molarity of sodium carbonate solution, 1.92 gm of which is dissolved in 400 ml of solution. (e) What is corrosion? Write the chemical formula of rust? (f) What are amalgams and alloys (g) Write two uses of Benzoic acid. (h) Write the composition of CNG. Give two application of it. (i) What is Co-polymer? Give an example of it. (j) Write the disadvantage of Lime-soda process.	2×10
2.	Answer any SIX questions : (a) What are the postulates of Bohr's model of atom? (b) Explain the formation of NH_4^+. (c) 4.6 gm of H_2SO_4 is present in 1.5 litre of its solution having density 1.4 gm/ml. Calculate Molarity and molality of the solution. (d) Explain briefly about waterline corrosion. (e) Define flux. What is acidic flux and basic flux? Give two example of each. (f) Differentiate thermoplastic polymer and thermosetting polymer. (g) Write the IUPAC name and structure of following compounds (i) 3,3,4- trimethyl pentan-2-ol (ii) 2- chloro-3-bromo-3-ethyl hex-1-ene (iii) $CH_3CH(Cl)C(C_2H_5)_2CH_2CH_2CH_2CH_3$ (iv) Toluene (v) Ethyne	5×6
3.	(a) Write down the observation and conclusion of Rutherford's Gold foil experiment. (b) What are isotopes and isobars? Give an example of each.	6 4
4.	(a) What is ionic bonding? Explain briefly with an example. (b) Explain Faradays 2nd law of electrolysis briefly. (c) Write the electronic configuration of Ti^{2+} and Cu^{2+}.	4 4 2
5.	(a) make a comparison between cold and hot lime soda processes.. (b) Find the pH of the solution contain3.2 g of hydrogen chloride dissolved in 1.0 litre of water.	5 5
6.	(a) What are hydrocarbon? Differentiate between saturated and unsaturated hydrocarbon. (b) Write the composition and uses of bronze and duralumin and almico.	4 6
7.	(a) Write the importance of pH value in industries. (b) Write the functions of lubricants.	6 4