CY8151 Engineering Chemistry

Important 13 Marks Questions

Part-B

Unit-I

1. What is hard water? Highlight its disadvantages?
2. Explain the mechanism of ion exchange process of water treatment.
3. Explain the reverse osmosis process and its advantages.
4. Compare zeolite process with lime-soda process in water treatment.
5. As water sample is alkaline to both phenolphthalein as well as methyl orange 100ml of the water sample on titration with N/50 HCl required 4.7ml of the acid to phenolphthalein end point. When a few drops of methyl orange are added to the same solution just the titration was further continued till the yellow color of the solution just turned red after the addition of another 10.5ml of the acid solution. Elucidate on the type and extent of alkalinity present in the water sample.

Unit-II

1. Derive and explain the Langmuir adsorption isotherm.
2. Write down the difference between physisorption and chemisorption.
3. Discuss the general characteristics of catalytic reactions.
4. Derive Michaelis-Menten equation of enzyme catalysis.
5. What is an adsorption isotherm? Draw the five general types of adsorption isotherm mathematically.

Unit-III

1. Deduce and explain the lead silver phase diagram.
2. What are the significance of alloying?
3. Explain the phase diagram of water in detail
4. Differentiate between hardening and nitrating heat treatment processes.
5. What do you mean by heat treatment of alloys? Discuss its advantages and various processes.

Unit-IV

1. How are fuels classified? Give examples for each of them.
2. Distinguish between ultimate and proximate analyses.
3. Explain the functioning of Orsat's apparatus.
4. Write about LPG, its uses, advantages and disadvantages.
5. Give a detailed procedure of determination of various elements present in coal (Ultimate analysis)

Unit-V

1. Explain the working of a hydrogen oxygen fuel cell.
2. Distinguish between nuclear fission and nuclear fusion.
3. Write notes on the working of a breeder reactor.
4. Explain the working of a lead acid battery.
5. a) What are fuel cells? Briefly describe about hydrogen-oxygen fuel cell.
   b) what are the advantages of Li Battery?