

Code No: 09A1BS03

R09

Set No. 4

I B.Tech Regular Examinations, JUNE 2010

ENGINEERING CHEMISTRY

**Common to CE, ME, CHEM, BME, IT, MECT, MEP, AE, BT, AME, ICE,
E.COMP.E, MMT, ETM, EIE, CSE, ECE, EEE**

Time: 3 hours

Max Marks: 75

**Answer any FIVE Questions
All Questions carry equal marks**

1. What is meant by a phase diagram? With the help of a phase diagram, explain the following ?
 - (a) Triple point
 - (b) Eutectic point. [15]
2. Classify the following fuels space by furnishing proper reasons.
 - (a) Coke
 - (b) Petroleum
 - (c) Benzol
 - (d) Biogas
 - (e) Lignite
 - (f) LPG
 - (g) Natural gas
 - (h) Anthracite. [15]
3. What is meant by coagulation of colloids? How is it brought out? [15]
4.
 - (a) Why is hard water harmful to boilers?
 - (b) Describe the causes and harmful effects of scale formation.
 - (c) One liter of water from Khammam Dist. in Andhra Pradesh showed the following analysis: $\text{Mg}(\text{HCO}_3)_2 = 0.0256$ gms, $\text{Ca}(\text{HCO}_3)_2 = 0.0156$ gms, $\text{NaCl} = 0.0167$ gms, $\text{CaSO}_4 = 0.0065$ gms, and $\text{MgSO}_4 = 0.0054$ gms. Calculate the lime & soda required for softening of 10,000 litres of water. [4+4+7]
5.
 - (a) What is the difference between free-radical and ionic chain polymerization?
 - (b) Write a note on preparation, properties and uses of
 - i. bakelite
 - ii. PVC. [5+5+5]
6. How are the following properties influence the stability of refractories?
 - (a) Chemical inertness.
 - (b) Refractoriness under load.

- (c) Refractoriness.
- (d) Dimensional stability. [15]
7. (a) What do you understand by electrochemical series? How is this series useful in the determination of corrosion of metals. 8M
- (b) The resistance of a 0.1N solution of an electrolyte of 40 ohms. If the distance between the electrodes is 1.2 cm and area of cross section is 2.4 cm². calculate equivalent conductivity. [8+7]
8. (a) Discuss the influence of following factors on corrosion:-
- i. Over voltage
 - ii. Nature of the metal
 - iii. Nature of environment.
- (b) Explain the nature and role of constituents of organic paints. [9+6]
