Code No: 09A1BS03 **R09**

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY, HYDERABAD
B.Tech I Year Examinations, June - 2014
ENGINEERING CHEMISTRY
(Common to all Branches)

Time: 3 hours **Max. Marks: 75**

Answer any five questions
All questions carry equal marks
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1.a) Give the preparation, properties and applications of Teflon and Bakelite.
b) What are the Characteristics of fibres? Give the preparation, properties and uses of polyester (tetylene).

2.a) What is hardness of Water? Explain the method of estimation of hardness by EDTA.
b) What are the common boiler troubles? Explain about Caustic embrittlement.

3.a) Give the classification and applications of colloids.
b) What are the types of adsorption? Explain Longmuir adsorption isotherm.

4.a) Define the terms, specific conductance, equivalent conductance, ionic mobility and Ionic conductance. How equivalent conductance of an electrolyte changes with dilution.
b) What are Primary and secondary cells? Explain the construction and functioning of Ni-Cd cell.

5.a) What is Corrosion? Explain the factors affecting Corrosion.
b) Explain hot dipping and cladding methods of coating of metals.

6.a) What is Petrol ? How is it synthesised by Bergius process?
b) The following data was obtained in a bomb calorimeter experiment:
Weight of coal burnt = 0.95g; Weight of water taken = 700g; increase in temperature = 2.48^0 C; Acid correction = 60.0 cal; Cooling correction = 0.02^0C; Fuse wire correction = 10.0 cal; Latent heat of water = 587 cal/g.
Calculate the GCV and NCV of the fuel, if the fuel contains 92% of C, 5% of H and 3% of ash.

7.a) Explain phase, component, degrees of freedom with the phase diagram of water system.
b) Explain the phase diagram of Lead-silver system. Explain Pattinson's process of desilverisation of lead.

8.a) What are cement, lubricant, refractory and insulator?
b) Explain the Chemical changes in setting and hardening of Portland cement with necessary equations.
c) Give the applications of super conductors.

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