Code: 9ABS103

R9

B.Tech I Year (R09) Supplementary Examinations, November/December 2012

ENGINEERING CHEMISTRY

(Common to all branches)

Time: 3 hours Max Marks: 70

Answer any FIVE questions

All questions carry equal marks

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1 Write short notes on the following:
   (a) Colloidal and phosphate conditioning.
   (b) Ion exchange resins.

2 Write short notes on the following:
   (a) Electroplating.
   (b) Impressed current cathodic protection.

3 Compare the following with suitable examples:
   (a) Thermosetting & Thermoplastic polymers.
   (b) Addition & Condensation polymerization.

4 Explain the working of red wood viscometer with the help of neat diagram.

5 (a) The equivalent conductance of a 0.005 N NaOH solution is 240 mho cm^2. What is the specific conductance and electrical resistance if the electrodes are 1 cm apart and each have a surface area of 1 cm^2.
   (b) On what factors does the conductance of a solution depend? How would you proceed to determine the conductivity of a solution?

6 (a) What are the important reactions pertaining to phase transformation?
   (b) What are the main reasons for heat treatment of alloys?

7 (a) What is meant by calorific value of a fuel? How does grass calorific value differ from net calorific value? Which of the two for a solid fuel is higher?
   (b) Calculate the volume of air (volume % of oxygen in air = 21) required for the complete combustion of one liter of carbon monoxide.

8 (a) Magnesite and dolomite refractory materials should not be placed in direct contact of fireclay refractory? Explain suitable reasons.
   (b) Why dolomite bricks rarely used as direct refractories?
   (c) Why should thermal expansion coefficient of a refractory be least?

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