Code : 9ABS103 1

B.TECH. I Year(R09) Regular Examinations, May/June 2010
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. (a) Define temporary hardness and permanent hardness of water.
   (b) How is hardness of water expressed? Explain any one method for the determination of hardness of water.
2. Define corrosion of metals and explain the mechanism of Electrochemical corrosion?
3. Compare the following with suitable examples
   (a) Thermosetting & Thermoplastic polymers
   (b) Addition & Condensation polymerization.
4. (a) What is the nano particle ? How are they fabricated?
   (b) Write an account on carbon nano tubes.
5. (a) What is meant by Specific Conductance and Equivalent conductance? What are its Units?
   (b) Equivalent Conductance of an electrolyte increases; where as Specific Conductance decreases. Explain.
6. Discuss the phase diagram of two-component system by taking suitable example.
7. Write short notes on:
   (a) Coal Gas.
   (b) Biogas.
   (c) Units for calorific value.
8. Explain the hardening and setting of cement using the chemical equations.

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Code : 9ABS103 **2**

B.TECH. I Year(R09) Regular Examinations, May/June 2010
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. (a) How water gets hardness. Distinguish between hard water and soft water?
   (b) How do you estimate the total hardness of water by EDTA method.
2. Explain various factors influence the corrosion of metals?
3. What are liquid crystal polymers? How they are produced? Explain the characteristics and uses of LCP.
4. (a) What are fullerene and Give an account of their application.
   (b) Write the applications of Carbon nano tubes.
5. (a) Explain the relationship between cell constant, conductivity and conductance?
   (b) Define the specific resistance of a solution? Explain the Specific Conductance with diagrammatic illustrate of specific conductivity. What are its units.
6. (a) What is condensed system? Write the reduced phase rule equation.
   (b) Write short notes on Freezing mixtures.
7. (a) Describe how synthetic petrol is synthesized from Bergius process.
   (b) Distinguish between coke and coal.
8. (a) What is cement? How do you classify the cement?
   (b) Explain the different raw materials and mixing of the raw materials by the dry process during the manufacture of cement.

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Code : 9ABS103 **3**

B.TECH. I Year(R09) Regular Examinations, May/June 2010
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. (a) What are the reactions takes place in the estimation of chlorine present in water.
   (b) Explain the procedure involved in the determination of chlorine present in water.
2. Explain the theory and mechanisms of Corrosion.
3. What are conducting polymers? How are they classified? Write important engineering applications..
4. (a) What is the effect of nanotechnology on food science .
   (b) What are the advancements of nanotechnology is refered to as nano medicine.
5. (a) Define the Cell Constant of a Conductivity Cell? Explain how it is measured? What are its Units.
   (b) The resistance of N/2 solution of an electrolyte in a well was found to be 50 ohm. Calculate the equivalent conductance of the solution, if the electrode in cell are 2.2 cm apart and with an area of 3.8 Sq cm.
6. (a) Describe the salient features of lead-silver system.
   (b) Explain the main features of the phase diagram of water system. Discuss why the slope solid-liquid line is negative for water.
7. (a) What are the gaseous fuels? How they are advantages over other fuels.
   (b) What are the different units expressed to know the efficiency of a fuel?
8. Explain the chemistry of the manufacture of cement by wet process.

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Code : 9ABS103

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B.TECH. I Year(R09) Regular Examinations, May/June 2010
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. Describe the basic principle involved in the estimation of alkalinity of water and give detailed procedure for the estimation of alkalinity of water.
2. (a) Explain the differential aeration corrosion.
   (b) Galvanization process.
3. Give an account of preparation, properties and uses of the following.
   (a) Polyurethane rubber
   (b) Nitrile rubber
4. (a) How are lubricant classified? Give example?
   (b) Explain the Boundary film lubrication theory and the mechanism of the lubricants.
5. (a) Discuss the titration curve obtain in conductometric titration of weak acid and strong base?
   (b) What are the limitations of conductometric titrations?
6. Discuss the general Phase diagram of two-component systems forming Compounds in solid state with:
   (a) Congruent melting points.
   (b) Incongruent melting points.
7. What do you mean by refining of petroleum? List out the various fractions obtained during refining of crude oil with their approximate composition, temperature range and uses.
8. What are Refractories? Explain Thermal spalling, strength and porosity of the refractories.

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