BT/CSE/ECE/EEE 113 (R-15)

Total No. of Questions :09] [Total No. of Pages : 02

I/IV B.Tech. DEGREE EXAMINATIONS, NOV/DEC-2017

First Semester

CSE/ECE/EEE

ENGINEERING CHEMISTRY

Time: Three Hours **Maximum marks:60**

Answer Question No.1 Compulsory **12X1=12 M**

Answer ONE Question from each Unit **4X12=48 M**

1. Answer the following
   a) Units of hardness
   b) Scale & sludge
   c) EDTA structure
   d) Primary Vs secondary batteries
   e) Scientific prospects of fuel cells
   f) Molten solvent batteries
   g) Effect of overvoltage on corrosion
   h) Chemistry involved in rusting of Iron
   i) Pitting corrosion
   j) Monomers of Bakelite
   k) Preparation of Nylon-6,6
   l) Drawbacks of natural rubber.

UNIT-I

2. a) Write a note on disinfection of water.
   b) Explain softening of water by ion-exchange process.

(OR)

3. Explain the following
   i) Boiler corrosion
   ii) Electrodialysis

UNIT-II

4. a) Discuss about in-situ & ex-situ electrochemical characterization.
   b) Write a note on Li ion batteries.

P.T.O

(OR)

5. Discuss the following
   i) BET surface area analysis
   ii) Hydrogen as future fuel.

UNIT-III

6. a) Explain the theory involved in wet corrosion.
   b) Explain the mechanism of corrosion inhibition.

(OR)

7. Explain the following
   i) Galvonic series
   ii) Dry corrosion

UNIT-IV

8. a) Distinguish between thermoplastics & thermosetting plastics.
   b) Explain addition, condensation and copolymerization with examples.

(OR)

9. Discuss the following
   i) Vulconization of rubber
   ii) Preparation, properties and uses of Bakelite.

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I/IV B. Tech. DEGREE EXAMINATIONS, JUNE / JULY 2017

FIRST SEMESTER

BT / CSE / ECE / EEE

ENGINEERING CHEMISTRY - I

Time : **Three Hours** Maximum Marks : **60**

Answer Question No. 1 Compulsory. 12x1=12 M

Answer ONE question from each Unit. 4x12=48 M

1. Answer the following.
   a) Structure of EDTA.
   b) Priming.
   c) Units of hardness.
   d) Solid state Li ion batteries.
   e) Primary cells.
   f) Applications of fuel cells.
   g) Galvonic corrosion.
   h) Effect of temperature on corrosion.
   i) Dry corrosion.
   j) Functionality.
   k) Examples of conducting polymers.
   l) Uses of Bakelite.

UNIT - I

2. a) Discuss about various impurities in water.
   b) What is break point chlorination ?

(OR)

3. a) Describe Lime-Soda process of water softening.
   b) What is reverse osmosis ?

UNIT - II

4. Discuss the following.
   a) Fuel cells.
   b) Li & C based nanomaterials & nanocomposites.

P.T.O.

(OR)

5. Give an account on the following :

   a) In-situ & Ex-situ electrochemical characterization.

   b) Solid oxide fuel cells.

UNIT - III

6. a) Explain the mechanism of wet corrosion.

   b) Discuss about differential aeration corrosion with a suitable example.

(OR)

7. a) Explain the mechanism of corrosion inhibition.

   b) What is sacrificial anodic method.

UNIT - IV

8. Explain the following :

   a) Mechanism of free radical addition polymerization.

   b) Synthetic rubber, BUNA-S & BUNA-N.

(OR)

9. Explain the following :

   a) Preparation, properties & uses of Bakelite.

   b) Conducting polymers.