

B.Tech I Year I Semester (R15) Regular &amp; Supplementary Examinations December 2016

**ENGINEERING CHEMISTRY**

(Common to ECE, ME, EIE and IT)

Time: 3 hours

Max. Marks: 70

**PART – A**

(Compulsory Question)

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- 1 Answer the following: (10 X 02 = 20 Marks)
- (a) Write any two disadvantages of hard water.
  - (b) Define caustic embrittlement.
  - (c) Write any two engineering applications of Buna-S.
  - (d) Write short note on silicones.
  - (e) What is galvanic corrosion?
  - (f) Give examples for cathodic and anodic inhibitors.
  - (g) Write any two characteristics of fuel.
  - (h) What is cetane number?
  - (i) Write any two applications of acidic refractory material.
  - (j) Write short note on fullerenes.

**PART – B**

(Answer all five units, 5 X 10 = 50 Marks)

**UNIT – I**

- 2 (a) What is breakpoint chlorination? Explain its significance.  
(b) Explain desalination of brackish water by electrodialysis method.

**OR**

- 3 (a) Explain zeolite method for the treatment of water.  
(b) Explain any three boiler troubles.

**UNIT – II**

- 4 (a) Differentiate between thermosetting and thermoplastic resins.  
(b) Explain the synthesis and applications of polyacetylene.

**OR**

- 5 (a) Explain cationic mechanism.  
(b) What are inorganic polymers? Write their applications.

**UNIT – III**

- 6 (a) Derive Nernst equation.  
(b) Explain electrochemical theory of corrosion.

**OR**

- 7 (a) What are the factors affecting corrosion based on nature of metal?  
(b) Explain in detail about cathodic protection.

**UNIT – IV**

- 8 Write the manufacture of metallurgical coke by Otto Hoffmann's by product oven method and write advantages and disadvantages of power alcohol.

**OR**

- 9 What is octane number? Explain the refining of petroleum.

**UNIT – V**

- 10 Write the composition of cement and explain setting and hardening of cement.

**OR**

- 11 Explain thick film, thin film and extreme pressure lubrication.