

Code: 15A51101

B.Tech I Year I Semester (R15) Supplementary Examinations June 2018

**ENGINEERING CHEMISTRY**

(Common to ECE, ME, EIE &amp; 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) Using simple chemical reactions, explain how water can be disinfected by chlorination.
  - (b) What is meant by DO with reference to water chemistry?
  - (c) Give two examples each of thermoplastic and thermoset polymers.
  - (d) What are living polymers?
  - (e) What is an electrochemical cell?
  - (f) Define passivity of a metal.
  - (g) Write the main steps involved in the refining of crude oil.
  - (h) Define calorific value of a fuel.
  - (i) Write the general composition of Portland cement.
  - (j) What are refractories? Mention the important characteristics of refractory materials.

**PART – B**

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

**UNIT – I**

- 2 What is meant by softening of water? Explain the process of water softening using ion-exchange resins. What other ion-exchangers can be used for this purpose? Which of these are more advantages.

**OR**

- 3 What are boiler troubles? Explain in short caustic embrittlement and its preventive measures.

**UNIT – II**

- 4 Discuss the preparation, properties and applications of Nylon-6, Nylon-6, 6 and Nylon – 11.

**OR**

- 5 Define elastomers. Briefly explain how is natural rubber processed, vulcanized and compounded.

**UNIT – III**

- 6 Derive an equation for calculating electrode potential of an electrode. State the importance of finding electrode potentials and also state what parameters affect electrode potential of an electrode.

**OR**

- 7 Using one example, explain what is concentration cell corrosion. How can we prevent concentration cell corrosion?

**UNIT – IV**

- 8 Describe Otto-Hoffmann's by product over process of manufacturing metallurgical coke.

**OR**

- 9 Describe the Bergius process of making synthetic petrol.

**UNIT – V**

- 10 Explain using a neat diagram, the thin film theory of lubricants.

**OR**

- 11 What are CNTs? How are they prepared? Where do they find applications?

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