Code: 15A51101 **R15**

B.Tech I Year II Semester (R15) Regular Examinations May/June 2016

ENGINEERING CHEMISTRY

(Common to CE, EEE and CSE)

Time: 3 hours Max. Marks: 70

PART – A

(Compulsory Question)

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1 Answer the following: (10 X 02 = 20 Marks)

(a) What are the units used for expressing hardness of water?

(b) How Calgon treatment prevents scale formation in boilers?

(c) Write any two differences of thermosetting and thermoplastics.

(d) Why does natural rubber needs compounding?

(e) Explain briefly discharging of lead acid battery.

(f) What is meant by corrosion inhibitors? Give two examples.

(g) Define calorific value. Mention its units.

(h) How power alcohol is helpful in fuels?

(i) Define refractory. Mention its classification with examples.

(j) What are carbon nano-tubes?

PART – B

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

UNIT – I

2 Discuss in detail the scale and sludge formation in water boilers. How is it controlled?

OR

3 What are ion – exchange resins? Discuss their application in water softening. Mention its advantages.

UNIT – II

4 Explain the preparation, properties and applications of Bakelite and Nylon 6:6.

OR

5 What are silicones? How are they manufactured? Mention its important uses?

UNIT – III

6 Define fuel cell. Explain the construction and working of $H_2 – O_2$ fuel cell. What are the advantages and uses of it?

OR

7 Discuss various factors influencing the rate of corrosion.

UNIT – IV

8 Describe the manufacture of metallurgical coke by Otto Hoffman's oven method.

OR

9 Explain the manufacture of synthetic petrol by Fischer Tropsch and Bergius methods.

UNIT – V

10 (a) Give the composition of Portland cement.

(b) Explain the setting and hardening of Portland cement with chemical reactions involved in it.

OR

11 Explain various lubrication mechanisms.

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