Code: 15A51101

R15

B.Tech I Year I Semester (R15) Regular & Supplementary Examinations November/December 2018

ENGINEERING CHEMISTRY

(Common to ECE, ME, EIE & IT)

Time: 3 hours Max. Marks: 70

PART – A

(Compulsory Question)

*****

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

(a) Write any two disadvantages of hard water.
(b) Write notes on boiler corrosion.
(c) Write any two engineering applications of PVC.
(d) What are the properties of Buna – S?
(e) Define Galvanic corrosion.
(f) What is pilling bed worth rule?
(g) Write any two characteristics of metallurgical coke.
(h) What is power alcohol? Write its disadvantage.
(i) What are carbon clusters? Give an example.
(j) Write the composition of cement.

PART – B

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

UNIT – I

2 (a) How do you estimate dissolved oxygen?
(b) Explain about demineralization of brackish water by reverse osmosis.

OR

3 (a) How do you estimate hardness by EDTA method?
(b) Explain about calgon and sodium aluminate treatment.

UNIT – II

4 (a) Explain about anionic and cationic mechanism.
(b) Write the preparation and properties of Bakelite.

OR

5 (a) Distinguish between thermosetting and thermoplastics.
(b) Explain about synthesis and applications of polyacetylene.

UNIT – III

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

OR

7 (a) Write any five factors affecting the corrosion.
(b) How do you prevent corrosion by cathodic protection?

UNIT – IV

8 (a) Describe in detail about proximate analysis.
(b) Write about determination of calorific value of gas fuels by Junker's calorimeter.

OR

9 (a) Write the manufacture of metallurgical coke by Otto-Hoffmann's by product oven process.
(b) Explain about octane and cetane number.

UNIT – V

10 Write setting and hardening of cement with chemical reactions involved.

OR

11 Explain about thin film and extreme pressure lubricants.

*****