Code: 15A51101 **R15**

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

ENGINEERING CHEMISTRY

(Common to CE, EEE & 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 is EDTA? Write the structure.
(b) Hard water does not lather with soap. Why?
(c) Write the monomers of Nylon-6,6.
(d) Differentiate between addition and condensation polymerization.
(e) Write the anodic and cathodic reactions of Daniel cell.
(f) What is a secondary battery? Give one example.
(g) Mention the different types of coal formed in the earth.
(h) What is kerosene oil?
(i) What are fullerenes?
(j) What is thermal spalling?

PART – B

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

UNIT – I

2 Describe the process of water treatment for domestic purpose by chlorination and ozonisation.

OR

3 (a) Write the causes and effects of scale formation in boilers.
(b) 100 ml of water sample has a hardness equivalent to 12.5 ml of 0.08 N $MgSO_4$. What is the hardness of water in ppm (M.Wt of $MgSO_4$ = 120)?

UNIT – II

4 (a) Write the preparation, properties and uses of Buna-S and polyurethane rubbers.
(b) Differentiate thermoplastic and thermosetting plastic.

OR

5 (a) Explain additional polymerization with an example.
(b) Explain the free radical mechanism of additional polymerization.

UNIT – III

6 What are fuel cells? Describe the H_2-O_2 fuel cell with a neat diagram.

OR

7 Write a brief note on
(a) Galvanic series.
(b) Corrosion inhibitors.

UNIT – IV

8 What is meant by knocking? How is it related to chemical constitution? Briefly discuss octane and cetane numbers.

OR

9 Describe the process of flue gas analysis by Orsat apparatus.

UNIT – V

10 Define a lubricant. Discuss the mechanism of thick film and thin film lubrication.

OR

11 Briefly discuss setting and hardening of Portland cement. What is the function of gypsum in this process?

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