H.T.No. | | | | | | | | | | |

Code No: CH1501 **GEC-R14**

I B. Tech II Semester Supplementary Examinations, January 2017

ENGINEERING CHEMISTRY

(Common to Civil Engineering, Electrical and Electronics Engineering, and Mechanical Engineering)

Time: 3 Hours **Max. Marks: 60**

Note: All Questions from **PART-A** are to be answered at one place.
Answer any **FOUR** questions from **PART-B.** All Questions carry equal Marks.

PART-A

6 × 2 = 12M

1. Explain principle of reverse osmosis.
2. Calculate reduction potential of half cell Zn/ Zn^{2+}(0.01 M). Standard reduction potential of zinc is - 0.76 V.
3. What is galvanic corrosion?
4. What are thermoplastics? Give examples.
5. Define cloud point and write its significance.
6. Explain atom economy.

PART-B

4 × 12 = 48M

1. a) Describe the estimation of hardness of water by EDTA method. (8M)

   b) 50 ml of a standard hard water containing 1mg of pure calcium carbonate per 1 ml consumed 20 ml of EDTA. 50ml of a water sample consumed 25 ml of same EDTA solution, using Eriochrome –T Indicator. Calculate total hardness of water sample. (4M)

2. a) What is electrochemical series? Write its significance. (6M)

   b) Write short notes on (6M)

   i) hydrogen- oxygen fuel cell

   ii) Photovoltaic cell.

3. a) Discuss Dry corrosion (6M)

   b) Explain the factors influencing the rate of corrosion. (6M)

4. a) Explain addition and condensation polymerisation with suitable examples. (6M)

   b) Write preparation, properties and uses of Bakelite. (6M)

5. a) What are LCV and HCV? Discuss determination of same using bomb calorimeter. (7M)

   b) What are lubricants? Write engineering applications of lubricants. (5M)

6. a) Discuss any four important applications of green chemistry. (6M)

   b) Write notes on (6M)

      i) Zero waste technology

      ii) Role of supercritical fluids extraction in green synthesis.

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