**Code No: 17**

# FACULTY OF ENGINEERING AND INFORMATICS

**BE II-Semester (Main & Backlog) Examination, May/June 2018**
**Subject: Engineering Chemistry-II**

**Time: 3 Hours** **Max. Marks: 70**

**Note: Answer all questions from Part-A, & any FIVE Questions from Part-B.**

## PART-A (10x2=20 Marks)

1. The Resistance of decinormal solution of a salt occupying a volume between two platinum electrodes 1.80 cm a part and 5.4 $cm^2$ in area was found to be 32 ohms. Calculate the equivalent conductance of the solution.
2. Represent Quinhydrone Electrode and Write the electrodic reaction for the reduction process and mention the S.R.P of the electrode.
3. What are main advantages of alkaline battery over dry battery?
4. Explain Photovoltaic Cell.
5. What is Pilling-Bed worth Rule? Explain.
6. Explain hot dipping method of metallic coating.
7. How do you calculate the calorific value of a fuel by Dulong's Formula?
8. Write the composition of CNG and mention its uses.
9. What are the constituents of composites? Give one example of a composite material
10. Give any two examples of clean technology.

## PART-B (5x10=50 Marks)

11. a) The equivalent conductivities of HCl, NaCl and $CH_3cooNa$ at infinite dilutions are 426.16, 126.45 and 91.0 $S\text{-}cm^2$ $eq^{-1}$ respectively. Calculate the equivalent conductivity of acetic acid at infinite dilution. If the degree of dissociation of 0.1N acetic acid is 0.001, find the equivalent conductance at this concentration of acetic acid.
    b) What are the different types of Potentiometric Titration? Explain their uses.
12. a) Describe the Working of $CH_3OH\text{-}O_2$ fuel cell.
    b) Explain why the lead acid storage cell can be recharged.
13. a) Explain (i) Water line Corrosion and (ii) Pitting Corrosion.
    b) What is paint? Explain the constituent of paint and their functions.
14. a) Define the term cracking. Explain Catalytic Cracking by moving bed method.
    b) What are the sources of a bio-diesel? Explain the concept of transesterificatin.
15. a) Write the applications of Liquid Crystals.
    b) Discuss the principles of green chemistry.
16. a) Explain Kholrausch Law and discuss any two applications of it.
    b) Discuss in detail about $H_2\text{-}O_2$ fuel cell.
17. a) What are corrosion inhibitors? Explain Cathodic inhibitors.
    b) A sample of coal was found to have the following percentage composition:

    C=75%; H=5.2%; O=12.1%; N=3.2% and ash=4.5%

    Calculate the minimum air required for complete combustion of 1kg of coal.

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