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Code No. D-2337/N/AICTE

FACULTY OF ENGINEERING

B.E. (ECE/M/P/AE) / (AI& DS, AI& ML, IoT, IT) II - Semester (AICTE) (Main & Backlog)
(New) Examination, September/ October - 2022

Subject : Engineering Chemistry / Chemistry

Time : 3 Hours

Max. Marks: 70

Note: (i) First question is compulsory and answer any four questions from the remaining six questions. Each Questions carries 14 Marks.
(ii) Answer to each question must be written at one place only and in the same order as they occur in the question paper.
(iii) Missing data, if any, may be suitably assumed.

1. a) State standard electrode potential.
b) Differentiate between primary and secondary battery.
c) State reverse osmosis.
d) Outline the sacrificial anodic protection of corrosion controlling method.
e) Explain the applications of conducting polymers.
f) What is CNG and LPG.
g) Give any two examples of clean technology.
2. a) Derive Nernst equation.
Standard electrode potential of Zn^{+2} is (-0.076V). Calculate the electrode potential of 2M Zn^{+2} solution at 300K
b) Describe the construction of Zn-Carbon battery in detail with neat diagram.
3. a) What is mean by de-ionized water . Explain the preparation of de-ionized water by Ion-Exchange method.
b) Explain the factors effecting the rate of corrosion.
4. a) Explain the preparation properties and applications of polylactic acid and Nylon 6.6.
b) Differentiate between thermoplastics and thermosetting resins.
5. a) Describe the Ultimate analysis of coal and its significance.
b) Calculate the weight of Air required for combustion of 1 Kg of coal containing 75% of Carbon , 10% of Hydrogen, 3% of Nitrogen, 8% of Oxygen and 4% of Ash.
6. a) What are the composite materials? Discuss the types of composites.
b) What are the sources of a bio-diesel? Explain the concept of transesterification and discuss the principles of green chemistry.
7. a) Explain the classification of fuels. How to prepare petroleum by fractional distillation.
b) Explain the classification of conducting polymers and write the mechanism of conduction in poly-acetylene.