

FACULTY OF ENGINEERING

B.E. (CSE/CME/DS/ECE/EEE/EIE) I – Semester (AICTE) (Main & Backlog)

Examinations, March / April 2022

Subject: Chemistry

Time: 3 Hours

Max. Marks: 70

Note: (i) First question is compulsory and answer any four questions from the remaining six questions. Each Question 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) What is galvanic cell? Write its anodic and cathodic reactions.
 - (b) What do you mean by Hot dipping?
 - (c) Distinguish between addition and condensation polymerization.
 - (d) Define Cracking. Write its significance.
 - (e) Differentiate between HCV and LCV.
 - (f) Explain concept of trans-esterification.
 - (g) What is a biodiesel? Give one example.
2.
 - (a) What is Fuel cell? Explain construction and applications of Methanol-Oxygen fuel cell.
 - (b) Calculate the EMF of the following cell at 27 °C with the help of Nernst equation. Write the cell reactions.
 $A1|A1^{3+}(0.001M) || Ag^+ (0.01M)|Ag$ ($E^\circ_{Al^{3+}/Al} = -1.66V$ and $E^\circ_{Ag^+/Ag} = 0.801 V$)
3.
 - (a) Explain the estimation of permanent hardness of water by EDTA method.
 - (b) Describe the various factors influencing the rate of corrosion.
4.
 - (a) Explain preparation, properties and uses of Bakelite.
 - (b) Discuss classification and applications of conducting polymers.
5.
 - (a) Describe concepts of fuel rating with the help of octane number and cetane number.
 - (b) Define fuel. Explain the classification and characteristics of fuels.
6.
 - (a) Discuss concept and principles of green chemistry. Give one example for clean technology.
 - (b) Explain the classification and general applications of Composites.
7.
 - (a) Describe preparation and applications of poly-lactic acid.
 - (b) What is cathodic protection? Explain sacrificial anodic protection method.