Code No. 2958/AICTE/M

FACULTY OF ENGINEERING

B.E. (ECE/M/P/AE/CSE/CME/IT) (AICTE) II-Semester (Backlog) Examination, December 2020

Subject: Chemistry

Time : 2 Hours | Max. Marks: 70

PART – A

Note: Answer any five questions. (5 x 2 = 10 Marks)

1 Define knocking and how can it be minimized.

2 What is meant by exhaust of ion exchangers? How can the cation and anion exchangers can be regenerated?

3 Define functionality of monomer and degree of polymerisation.

4 Explain the significance of octane and cetaine numbers.

5 What is carbon neutrality of biodiesel?

6 Define single and standard electrode potentials.

7 Write the synthesis of an elastomer BUNA-S. Mention.

8 Give an account of catalysis.

9 'Corrosion of water filled steel tanks occur below the waterline'. Justify.

10 Mention two half-cell reactions of methanol-oxygen fuel cell.

PART – B

Note: Answer any four questions. (4 x 15 = 60 Marks)

11 (a) Classify the reference electrodes with suitable examples.
(b) How do you determine the pH of a solution by using glass electrode?

12 (a) A sample of hardwater on analysis is found to contain 13.6 mg/lit of calcium sulphate, 7.3 mg/lit of magnesium bicarbonate, 12 mg/lit of magnesium sulphate, 9.5 mg/lit of magnesium chloride and 100 mg/lit of organic matter. Calculate total, permanent and temporary hardness of water in °French and °Clarke.
(b) Discuss the following with suitable examples.
(i) sacrificial anodic protection (ii) Impressed current cathodic method

13 (a) Explain the mechanism of conduction and write the applications of conducting polymers. https://www.osmaniaonline.com
(b) Explain the preparation, properties and Engineering applications of NYLON 6 : 6 and Kevlar.

14 (a) Explain the proximate analysis of coal to ascertain its quality and its significance.
(b) An oil on analysis gave the following results. C = 85% ; H = 12% and oxygen = 3%. Find the weight of minimum air required for burning of 1kg of fuel.

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15 (a) Describe the process of fractional distillation of petroleum. Mention the composition and uses of petroleum fractions.

(b) Describe the process of moving bed catalytic cracking. Write its advantages over fixed bed catalytic cracking.

16 (a) Explain the twelve principles of green chemistry. Give examples of clean technology.

(b) Write the properties and applications of reinforced composite materials.

17 (a) Discuss the reverse osmosis method for desalination of brackish water. Mention its advantages.

(b) Explain any six factors influencing the rate of corrosion.

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