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Name of the Program: B.Sc. in ME
Semester: 2nd

Date: 22 February, 2023
Time: 2:00 pm – 03:30 pm

ISLAMIC UNIVERSITY OF TECHNOLOGY (IUT)
ORGANISATION OF ISLAMIC COOPERATION (OIC)
DEPARTMENT OF MECHANICAL AND PRODUCTION ENGINEERING

Mid-Semester Examination
Course No.: Chem 4215
Course Title: Chemistry of Engineering materials

Summer Semester, A. Y. 2021-2022
Time: 1 hour 30 minutes
Full Marks: 75

There are **3 (three)** questions. Answer all **3 (three)** questions. The symbols have their usual meanings. Programmable calculators are not allowed. Marks of each question and corresponding COs and POs are written in the brackets.

1.	a)	Describe how corrosion can be prevented by modification of metal and the environment.	7	CO1 PO1
	b)	Discuss the different types of corrosion with related example.	8	CO2 PO1
	c)	Illustrate the effect of dissolved salts and pH on the rate of under-water corrosion.	10	CO3 PO2
2.	a)	Define latex stating its composition and explain the converting process of latex into rubber.	7	CO1 PO1
	b)	Briefly discuss the synthesis followings with necessary illustration. i) Melamine ii) Teflon iii) Neoprene rubber iv) Polystyrene.	8	CO2 PO1
	c)	Explain the term polymerization and hence interpret the mechanism of addition polymerization.	10	CO3 PO2
3.	a)	Describe the effect rocks and minerals on under-ground water.	7	CO1 PO1
	b)	Explain hardness of water. 100 mL of sample water require 11 mL $AgNO_3$ solution to react completely with chloride ion. Estimate the amount of Cl^- present in the sample water. Given that 25 mL 0.5 N NaCl solution is required to standardize 26.5 mL $AgNO_3$ solution.	8	CO2 PO1
	c)	Interpret scale and sludge, causes, disadvantage, and the prevention method of scale and sludge formation.	10	CO3 PO2