Code: 23BS1204

I B.Tech - II Semester – Regular Examinations - JULY 2024

ENGINEERING CHEMISTRY
(Common for CE, ME)

Duration: 3 hours   Max. Marks: 70

Note: 1. This question paper contains two Parts A and B.
   2. Part-A contains 10 short answer questions. Each Question carries 2 Marks.
   3. Part-B contains 5 essay questions with an internal choice from each unit. Each Question carries 10 marks.
   4. All parts of Question paper must be answered in one place.

BL – Blooms Level   CO – Course Outcome

PART – A

		BL	CO
1.a)	Define Reverse osmosis.	L1	CO2
1.b)	What is BIS?	L1	CO2
1.c)	What is a fuel cell?	L1	CO1
1.d)	Define Pillingbedworth rule.	L1	CO1
1.e)	Define Functionality of monomer.	L1	CO2
1.f)	What is HCV & LCV?	L1	CO2
1.g)	What is a refractory?	L2	CO1
1.h)	Explain why Thick film lubricant mechanism is known as hydrodynamic mechanism.	L2	CO5
1.i)	What is a Micelle?	L1	CO3
1.j)	Write the equation of Freundlich adsorption isotherm.	L2	CO3

PART – B

			BL	CO	Max. Marks
UNIT-I					
2	a)	Explain Estimation of hardness of water by EDTA method.	L2	CO2	5 M
	b)	Write a note on Electro dialysis.	L1	CO2	5 M
OR					
3	a)	Illustrate ion exchange process with a neat labelled diagram.	L2	CO2	5 M
	b)	Write a note on Caustic Embrittlement.	L1	CO2	5 M
UNIT-II					
4	a)	What is a battery? Explain construction, working and applications of Zinc-air battery.	L3	CO2	5 M
	b)	Explain Electro chemical corrosion by Evolution of Hydrogen mechanism.	L2	CO2	5 M
OR					
5	a)	What is a fuel cell? Explain H_2-O_2 Fuel cell with a neat diagram.	L2	CO2	5 M
	b)	What is electro less plating? Explain it with an example.	L2	CO4	5 M
UNIT-III					
6	a)	What is addition polymerization? Explain mechanism involved in preparation of polyvinyl chloride.	L3	CO4	5 M

	b)	Explain Fractional distillation method with a neat labelled diagram.	L3	CO4	5 M
OR					
7	a)	List out the engineering applications of the composites.	L2	CO2	5 M
	b)	Write the characteristic of a monomer for step by growth polymerization with an example.	L2	CO4	5 M

UNIT-IV

8	a)	Explain boundary film and Extreme pressure lubricating mechanism.	L2	CO4	5 M
	b)	Describe the factors affecting refractory materials.	L2	CO5	5 M
OR					
9	a)	What is Portland cement? Explain reactions involved in setting and hardening of cement.	L3	CO5	5 M
	b)	Write the applications of structural reinforced composites and fibres.	L2	CO5	5 M

UNIT-V

10	a)	Illustrate how colloids are prepared using Braggs method.	L2	CO5	5 M
	b)	Write the applications of nanomaterials in various fields.	L2	CO3	5 M
OR					

11	a)	Explain how nano metal oxides are prepared using stabilizing agents.	L3	CO3	5 M
	b)	Write a note on Langmuir adsorption isotherm.	L2	CO5	5 M