3/4/23

Reg. No.													

Question Paper Code	11758

B.E. / B.Tech. - DEGREE EXAMINATIONS, NOV/DEC 2022 (MARCH 2023)

First Semester

Artificial Intelligence and Data Science

(Common to all branches except Computer Science and Business Systems)

20BSCY101 - ENGINEERING CHEMISTRY

(Regulations 2020)

Duration: 3 Hours | Max. Marks: 100

PART -A (10 × 2 = 20 Marks)

Answer ALL Questions

		Marks, K-Level,CO
1.	What is calgon conditioning? How is it functioning in water treatment?	2,K2,CO1
2.	What is the hardness of a solution containing 0.6 grams of $MgSO_4$ per litre?	2,K1,CO1
3.	Define differential aeration.	2,K1,CO2
4.	What is electroplating?	2,K1,CO2
5.	What does the abbreviation CNG stands for? Why is CNG preferred over gasoline?	2,K1,CO3
6.	What is meant by Gobar gas?	2,K1,CO3
7.	Define photo galvanic cell.	2,K1,CO4
8.	List any two advantages of lithium batteries.	2,K1,CO4
9.	Why is Kevlar much less flexible than nylons?	2,K1,CO5
10.	What is carbon nanotube? How it is classified?	2,K1,CO5

PART - B (5 × 13 = 65 Marks)

Answer ALL Questions

11.	a)	(i) Explain the process of softening of water carried out using the zeolite.	7,K2,CO1
		(ii) Explain the neat diagram, the desalination of brackish water of reverse osmosis method.	6,K2,CO1
		OR	
	b)	(i) Discuss the factors which influence adsorption of a gas on a solid.	7,K2,CO1
		(ii) Distinguish between physisorption and chemisorption.	6,K2,CO1
12.	a)	Discuss the mechanism of electrochemical corrosion by hydrogen evolution and oxygen absorption.	13,K2,CO2
		OR	

b) What is paint? What are the constituents of paint? Explain their functions. 13,K1,CO2

13. a) Describe the Otto – Hoffman method for manufacturing of metallurgical coke. 13,K2,CO3

OR

b) Explain the flue gas analysis by ORSAT method with suitable diagram. 13,K2,CO3

14. a) (i) What is a breeder reactor? Explain with a neat diagram the conversion of U-235 into Pu-239. 8,K2,CO4
(ii) Distinguish between nuclear fission and nuclear fusion. 5,K2,CO4

OR

b) Explain the working of a hydrogen-oxygen fuel cell. 13,K2,CO4

15. a) (i) Explain the free radical polymerisation mechanism with suitable examples. 7,K2,CO5
(ii) Write the preparation and uses of Nylon-6,6 and Teflon. 6,K2,CO5

OR

b) Explain laser ablation and electro-deposition method for producing nanomaterials with a neat diagram. 13,K2,CO5

PART - C (1 × 15 = 15 Marks)

16. a) What are boiler troubles? How they are caused? Suggest steps to minimize the boiler troubles. 15,K2,CO1

OR

b) Explain ultimate analysis of coal with its significances. 15,K2,CO5