Register Number:……..

B.E/B.TECH DEGREE EXAMINATIONS: NOV/DEC 2024

(Regulation 2017)

First Semester

FASHION TECHNOLOGY

U17CHT1006: Chemistry for Textiles

COURSE OUTCOMES

CO1: Design a water purifier
CO2: Discuss the adsorption and its application
CO3: Describe interaction in fibers
CO4: Analyse the chemical group present and classify the dyes
CO5: Analyse the usage of specialty chemicals in various applications
CO6: Discuss different additives used for polymers in textiles

Time: Three Hours **Maximum Marks: 100**

Answer all the Questions:-

PART A (10 x 2 = 20 Marks)

(Answer not more than 40 words)

1.	Describe Calgon conditioning in internal treatment of water	CO1	[K_2]
2.	Explain the principle of reverse osmosis in water treatment	CO1	[K_2]
3.	Adsorption is an exothermic process – justify	CO2	[K_4]
4.	List the factors affecting adsorption of gases on solids	CO2	[K_1]
5.	Mention the type of bonding involved in the following molecules: CH_4, NaCl, O_2 & H_3O^+	CO3	[K_3]
6.	What is meant by dye-fiber interaction? List any two types of bonding involved.	CO3	[K_2]
7.	Differentiate between chromophore and auxochromes with examples	CO4	[K_3]
8.	List out the characteristics of a dye	CO4	[K_1]
9.	Why are specialty chemicals essential in the textile industry?	CO5	[K_4]
10.	How does UV stabilizer improve polymer properties?	CO6	[K_3]

Answer any FIVE Questions:-

PART B (5 x 16 = 80 Marks)

(Answer not more than 400 words)

11.	a)	Describe boiler corrosion, its causes, effects on boiler performance, and preventive measures.	8	CO1	[K_2]
	b)	Explain the ion exchange method for external water treatment.	8	CO1	[K_3]

12.	a)	Differentiate between physical and chemical adsorptions	8	CO2	[K_4]
	b)	Describe the Langmuir adsorption isotherm, its key assumptions, and the mathematical equation	8	CO2	[K_2]
13.	a)	Discuss the different types of Van der Waals forces of attraction	8	CO3	[K_2]
	b)	Describe the different types of interactions between dyes and fibers, with examples of bonds formed during the dyeing process.	8	CO3	[K_3]
14.	a)	Discuss the classification system of dyes	8	CO4	[K_3]
	b)	Explain the synthesis method, chemical reactions involved and industrial significance of indigo dye	8	CO4	[K_2]
15.	a)	Explain the role of dispersing agents, leveling agents, retarding agents, and dye fixing agents in textile dyeing processes.	8	CO5	[K_2]
	b)	Discuss the functions of various additives in polymers	8	CO6	[K_4]
16.	a)	Explain the main steps involved in an effluent treatment.	8	CO1	[K_2]
	b)	Describe the various applications of adsorption in the textile industries	8	CO2	[K_3]

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