KUMARAGURU
college of technology
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Register Number:……..

B.TECH DEGREE EXAMINATIONS: NOV / DEC 2014

(Regulation 2009)

Fourth Semester

TEXTILE TECHNOLOGY

TTX107: Textile Chemical Processing I

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

Answer all the Questions:-

PART A (10 x 1 = 10 Marks)

1. Which one of the following is not a hydrolytic desizing method?
   a) Acid Steeping b) Enzyme Desizing
   c) Rot Steeping d) Peroxide Method
2. Average melting point of cotton wax is --- ^{o} C
   a) 20 – 30 b) 60 – 80
   c) 160 – 180 d) 265
3. Methylene Blue test method is used to assess the presence of --- groups in the bleached samples.
   a) Ketone b) Hydroxyl
   c) Carboxyl d) Ether
4. Width-wise control in mercerization is possible in the ---- process
   a) Padless chainless b) Pad – chain
   c) Pad – chainless d) Both A & C
5. Indigo dyes are preferred in the case of denims due to high ---
   a) Affinity b) Substantivity
   c) Insolubility d) Fastness
6. Type of interaction formed between dye and fibre in the case of metal complex dye is ---
   a) Hydrogen bond b) Coordination bond
   c) Covalent bond d) Van der Waals interaction

7. Temperature range used in thermosol dyeing of PET is --- ^{o} C

a) 60 – 80 b) 80 – 100

c) 130 – 140 d) 180 – 220

8. Select the colourants used in dyeing of polypropylene.

a) Acid dyes b) Disperse dyes

c) Vat dyes d) Metal complex dyes

9. Paddles are used in dyeing of ---

a) Hand kerchief b) Garments

c) Knitted fabrics d) Woven fabrics

10. Which one of the following is not considered as the principle of ultrasonic dyeing?

a) Cavitation b) Agitation

c) Interface instabilities d) Free volume creation

PART B (10 x 2 = 20 Marks)

11. Differentiate between oxidative and hydrolytic methods of desizing.
12. Suggest any two methods of assessing singed yarns.
13. List the active bleaching species present in hydrogen peroxide and sodium hypochlorite.
14. How do you distinguish between semi-continuous and continuous processes?
15. Name any two fibres that can be dyed using acid dyes, basic dyes and reactive dyes (all the three dyes).
16. Suggest suitable method(s) to differentiate between indigo and anthraquinone dyes.
17. What is the role of carrier in polyester dyeing?
18. Is it possible to enhance the fastness properties of direct dyes? If so, list them.
19. Define the term ‘expression’ in padding process.
20. List different problems associated with winch dyeing machine.

PART C (5 x 14 = 70 Marks)

21 (a) (i) Compare and contrast between saponification and emulsification reactions. (7)

(ii) Recall the precautions to be considered during gas singeing process. (7)

OR

(b) (i) Compare soap and enzyme degumming processes. (10)

		(ii)	At what stage of wool processing, carbonization is carried out?	(4)
22	(a)	(i)	Tabulate the bleaching process parameters used in peroxide, hypochlorite and chlorite process (temp, pH and auxiliaries used)	(7)
		(ii)	Give the bleaching mechanism and limitation of hypochlorite bleaching agent.	(7)
			(OR)	
	(b)	(i)	Analyse the structural changes that take in cotton fibres during mercerization.	(7)
		(ii)	Compare mercerization and liquid ammonia treatment.	(7)
23	(a)	(i)	Differentiate between exhaustion and fixation reactions carried out in reactive dye application.	(7)
		(ii)	Summarize various reasons for changes in the shade observed in vat dyed samples during soaping treatment.	(7)
			(OR)	
	(b)	(i)	Where and when do we observe ‘bronziness’, ‘blooming of dyes’ and ‘blinding’ in dyeing process?	(9)
		(ii)	Comment on fastness properties of reactive dyed fabrics.	(5)
24.	a)		Explain the process of mass colouration in terms of selection of colourants, process conditions and methods of colouration.	
			(OR)	
	b)	(i)	Illustrate dyeing cycle of PET using HTHP process.	(7)
		(ii)	Justify the reason for using cationinc dyes for acrylic fibres.	(7)
25	a)	(i)	Explain the concept of dyeing using ultrasonics.	(7)
		(ii)	Compare the features of jet dyeing and soft flow machines.	(7)
			(OR)	
	b)		Explain the dyeing principle of garments with last any two dyeing machines.	

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