Seat No.: _____ Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY

BE - SEMESTER–VIII • EXAMINATION – WINTER • 2014

Subject Code: 182801 Date: 04-12-2014

Subject Name: Technology of Dyeing - III

Time: 02:30 pm - 05:00 pm Total Marks: 70

Instructions:

1. **Attempt all questions.**
2. **Make suitable assumptions wherever necessary.**
3. **Figures to the right indicate full marks.**

Q.1	**(a)**	Answer the following objective questions	**10**
	i.	Site to site mechanism is observed in ---------- dyeing system.	
	ii.	Deamination of wool is carried out with ---------- acid.	
	iii.	Ion dipole forces are mainly responsible for----------property of ionic dyes.	
	iv.	Show the enolization isomerism scheme.	
	v.	What is 'effective volume'?	
	vi.	What is Lewis acid?	
	vii.	Give two examples of reversible dyeing systems.	
	viii.	The dyeing which gives uniform build up of dye with respect to dyeing time is called as ----------dyeing.	
	ix.	Neale and Garvie carried out the experiment for diffusion coefficient in ---------- state.	
	x.	Which are two essential conditions for study of thermodynamics of dyeing?	
	(b)	Write a note on variations in acid dyeing adsorption on wool pH of dye bath.	**04**
Q.2	**(a)**	Give a critical review on dyeing of wool with acid dyes.	**10**
	(b)	Write a note on maximum dye combining power of wool	**04**
		OR	
	(b)	Measurement of affinity of acid dyes on wool by titration of free dye acids.	**04**
Q.3	**(a)**	Describe various physicochemical and thermodynamic aspects of azoic dyes on cellulose.	**10**
	(b)	Effect of substrate on direct dyeing of cellulose.	**04**
		OR	
Q.3		Describe various thermodynamic aspects of reactive dyeing of cotton.	**14**
Q.4	**(a)**	Describe the importance of soaping of vat dyes.	**10**
	(b)	Give a brief note on over reduction of vat dye.	**04**
		OR	
Q.4		Discuss "Electrical phenomenon in dyeing". Explain, with proper illustration, how the distribution of ionic species can be studied using the concept of "Donnan membrane equilibrium".	**14**
Q.5	**(a)**	Discuss the concept of chemical potential and free energy. Explain the derivation of equation for measuring heats of dyeing.	**08**
	(b)	Derive an expression of Fick's second law of diffusion.	**06**
		OR	
Q.5	**(a)**	Explain the term approximate diffusion coefficient, its determination and significance.	**05**
	(b)	Discuss the concept of compatibility of dyes with suitable examples.	**05**
	(c)	Explain the term, "optimum temperature of a dye".	**04**

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