Seat No.: _____ Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY

BE - SEMESTER–V • EXAMINATION – SUMMER • 2015

Subject Code: 152803 Date: 11/05/2015

Subject Name: Analytical Textile Chemistry - I

Time: 02.30pm-05.00pm 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: **i.** Name any two indicators used to measure alkalinity of water samples. **ii.** COD value of any effluent sample is always _____ than its BOD value. **iii.** Efficiency of soap to form leather is reduced by use of hard water, true or false? **iv.** Ultimate analysis of fuel sample resembles qualitative analysis of substances, true or false? **v.** 1.0 mg colour is equivalent to _____ hazen unit colour. **vi.** Isolation of pure compound can be done using chromatography techniques, true or false? **vii.** Free acidity in oil is indicated by _____ number.	**07**
	(b)	Describe the principle, construction and working of yield value of any lubricant sample with a neat diagram.	**07**
Q.2	**(a)**	Discuss the significance of volatile matter and ash content of coal with procedure to determine the same.	**07**
	(b)	Elucidate the principle, test method and evaluation scheme to fine hardness of water with suitable calculations.	**07**
		OR	
	(b)	Enlist the problems arise due to excessive iron content in water sample. Write the suitable process to evaluate the same.	**07**
Q.3	**(a)**	Write a detailed note on glass electrode with neat sketch.	**07**
	(b)	Give various applications and limitations of IR spectroscopy with involved principle.	**07**
		OR	
Q.3	**(a)**	Bright out the highlights on conductance spectra to evaluate end point of titrations for combination of different types of acids and bases.	**10**
	(b)	Discuss the importance of water analysis in Textile Processing.	**04**
Q.4	**(a)**	Discuss the principle, test method and evaluation technique for silica content of water sample.	**07**
	(b)	Discuss the principle and test procedure to obtain dissolved oxygen present in water sample.	**07**
		OR	
Q.4	**(a)**	Discuss the principle, test method and evaluation technique for nitrate content of water sample.	**07**
	(b)	Enlist the applications of spectrophotometer in textile analysis. Explain about different components of the same.	**07**
Q.5	**(a)**	State the principle of chromatography. Depict about paper chromatography in depth.	**10**

	(b)	Give the titration method to determine purity of Sodium hypochlorite with appropriate calculations.	**04**

OR

Q.5	**(a)**	Describe the principle, working and construction of Redwood viscometers with suitable calculations associated.	**10**
	(b)	Give the significance and method to find sulphur content of coal sample.	**04**

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