

GUJARAT TECHNOLOGICAL UNIVERSITY**BE - SEMESTER-VII (NEW) EXAMINATION – WINTER 2018****Subject Code: 2173615****Date: 19/11/2018****Subject Name: New Functional dyes & Recent Trends in Dyes Technology****Time: 10:30 AM TO 01:00 PM****Total Marks: 70****Instructions:**

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

		MARKS
Q.1	(a) Give the importance of metal complex dyes.	03
	(b) Give the synthesis of Solvent Yellow 56.	04
	(c) What is meant by functional dyes? Discuss about interactions of functional dyes with considering heat, electricity, pressure, frictional force and pH.	07
Q.2	(a) Write a note on fat and oil soluble dyes.	03
	(b) Give the properties & applications of solvent dyes.	04
	(c) Discuss the 1:2 chromium complex dyes with one sulphonic acid group.	07
	OR	
	(c) Discuss the 1:2 chromium complex dyes with two or more sulphonic acid group.	07
Q.3	(a) Write a short note on Dyes in electrography.	03
	(b) Discuss application of functional dyes in Laser Printing.	04
	(c) Briefly explain the ingredients used in hair dyes.	07
	OR	
Q.3	(a) Give the synthesis of Food Yellow 3 & Food Red 9.	03
	(b) Discuss Dyeing with Oxidation Dyes with respect to hair dyes.	04
	(c) Briefly Explain Temporary Hair Dye, Semi-Permanent Hair Dye and Permanent Hair Dye.	07
Q.4	(a) How do you differentiate Right First Time (RFT) dyeing technology with conventional dyeing technology?	03
	(b) Write down the benefits and properties of supercritical CO ₂ dyeing technology.	04
	(c) What is Dye sensitized solar cell (DSSC)? How it works?	07
	OR	
Q.4	(a) Explain the following terms: (i) % Exhaustion (ii) Strike Temperature	03
	(b) Discuss about the Ionic solvent.	04
	(c) Give the various requirements in redox catalyst for indirect electrochemical dyestuff reduction. Discuss the electrochemical dyeing procedure.	07
Q.5	(a) Discuss the mediator systems with respect to indirect electrochemical dyeing.	03
	(b) Discuss the natural dyes used as photo sensitizers for dye-sensitized solar cell.	04
	(c) Explain the typical configuration and the setup of the dye bath monitoring system with suitable diagram.	07
	OR	
Q.5	(a) Write down the difference between conventional dyeing and electrochemical dyeing technology.	03

- (b) Discuss the role of each ingredients involved in dye sensitized solar cell **04**
- (c) Explain supercritical CO₂ dyeing technology with its advantages and disadvantages. **07**

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