Seat No.: Enrolme	nt No
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## **GUJARAT TECHNOLOGICAL UNIVERSITY** BE - SEMESTER-VII(NEW) • EXAMINATION – WINTER 2016

Date: 21/11/2016

Subject Code:2173615

Subject Name: (Department Elective - VIII) Time: 10.30 AM to 1.00 PM **Total Marks: 70 Instructions:** 1. Attempt all questions. 2. Make suitable assumptions wherever necessary. 3. Figures to the right indicate full marks. 0.1 (a) Briefly explain Solvent dyes. Give the synthesis of Solvent Yellow 19. 07 **(b)** Briefly explain Solvent dyes for Polymer with suitable examples. 07 **Q.2** (a) Briefly explain Alcohol and Ester Soluble Solvent dyes. 07 (b) Define functional dyes. Write down the factors affecting the functional dyes and **07** explain effect of electromagnetic radiation on the functional dyes. **(b)** Briefly explain Metal complex dyes with suitable examples. 07 0.3 (a) Briefly explain technology of dyes in Fluorescent Sensors and Probes. 07 **(b)** What are the harmful effects of hair dyes? 07 (a) Explain the term Cuticle, Cortex and Medulla. Briefly explain traditional 0.3 **07** method of application for hair dyes. **(b)** Briefly explain the ingredients used in hair dyes. 07 **Q.4** Briefly explain Betanin and Annatto with its structural formula. 07 **(b)** (i) Give the synthesis of Tartrazine. 07 (ii) Give the synthesis of Sunset Yellow FCF. OR (a) Briefly explain microwave dyeing technology. 0.4 07 (b) Briefly explain ionic-liquids as solvents in dyeing technology. 07 Q.5 (a) Explain the dyes sensitized solar cell with suitable diagram. **07** (b) Briefly explain Super Critical Carbon Dioxide dyeing method with its 07 advantages and dis-advantages. OR Which class of dye are applicable for electrochemical dyeing process? Briefly **07** Q.5 explain textile process and dyeing effluent treatment for Electrochemical dyeing method? **(b)** What is DSSC technology? How does DSSC work? 07 \*\*\*\*\*