

**PARUL UNIVERSITY**  
**FACULTY OF APPLIED SCIENCE**  
**M.Sc. Summer 2022-23 Examination**

**Semester: 4**  
**Subject Code: 11205280**  
**Subject Name: Synthetic Dyes**

**Date: 27/03/2023**  
**Time: 2:00pm to 4:30pm**  
**Total Marks: 60**

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**Instructions:**

1. All questions are compulsory.
2. Figures to the right indicate full marks.
3. Make suitable assumptions wherever necessary.
4. Start new question on new page.

- Q.1. A) Brief note (4x2) (Each of 04 marks) (08)**
- (a) Explain Mordant dyes, Acid dyes, Ingrain dyes & Fibre reactive dyes in detail.
  - (b) Write synthesis of Phenolphthalein & state its uses.
- Q.1. B) Answer the following questions (Any two)**
- (a) Explain Hueman's first synthesis. (04)
  - (b) Write a note on Donor-Acceptor chromophore. (04)
  - (c) Define (i) Chromophore (ii) Auxochrome (iii) Chromogen (iv) Leuco form (04)
- Q.2. A) Answer the following questions.**
- (a) Write Witt's theory. (04)
  - (b) Write a short note on electro optical applications of dyes. (04)
- Q.2. B) Answer the following questions (Any two)**
- (a) What is Bathochromic & Hypsochromic shift? (03)
  - (b) State characteristics of brightening agents. (03)
  - (c) Write applications of brightening agents. (03)
- Q.3. A) Essay type/ Brief note (4x2) (Each of 04 marks) (08)**
- (a) Give a long note on toxicity of Azodyes.
  - (b) Write a synthesis of Lithol Rubine pigment.
- Q.3. B) Answer the following questions (Any two)**
- (a) Give Synthesis of Methyl orange dye & state its uses. (04)
  - (b) Write synthesis of Congored dye & why it is called Congo red dye? (04)
  - (c) Elaborate anomalous Tautomerism of amino-Imino Azodyes. (04)
- Q.4. A) Answer the following questions.**
- (a) Describe Laser dyes in detail. (04)
  - (b) Write xerography technique in detail. (04)
- Q.4. B) Answer the following questions (Any two)**
- (a) Write a note on food dyes. (03)
  - (b) Give a short note on dyes as drugs. (03)
  - (c) Write a detail note on dyes for foam. (03)