

**PARUL UNIVERSITY**  
**PARUL INSTITUTE OF APPLIED SCIENCES**  
**MID SEMESTER INTERNAL EXAMINATION, FEBRUARY 2020**  
**M.Sc. Chemistry Semester IV**

**Paper Name: Synthetic Dyes**

**Date: 06/03/2020**

**Paper Code: 11205254**

**Time: 1hr 30min**

**Max. Marks: 40**

**Instructions:**

1. All questions are compulsory and options are given in first and second question only.
2. Numbers to the right of question indicate the marks of respective question.

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**Q. 1** Attempt any one question of the following. **(08)**

- (i) Write a classification of dyes in detail
- (ii) (a) Give a synthesis & uses of Malechite Green Dye.  
(b) Differentiate sulphonated & non-sulphonated cyanine dyes.

Write structures of Phthalocyanine & Squarilium NIR dye.

**Q. 2** Attempt any three questions of the following. **(12)**

- (i) Give Heumann's first & second synthesis for Indigo dyes.
- (ii) Give anomalous details about Tautomerism of Amino azo dyes.
- (iii) Write a long note on toxicity of Azodyes.
- (iv) Write & Describe synthesis of Lithol Rubine pigment.
- (v) (a) Describe Donor-Acceptor concept of dyes in detail.  
(b) Write a Synthesis of Eosin.

**Q. 3** Do as directed. Attempt all five questions. **(05)**

- (i) Why m-Nitro aniline is in intense color than aniline?
- (ii) Define Leuco form.
- (iii) Write a chemical equation describing fibre reactive dye function?
- (iv) What is auxochrome? Give an example.
- (v) Give structure & use of Orange-II dye.

**Q. 4** Write correct option in your answer sheet for following 15 multiple choice questions/ Filling the gaps. **(15)**

- (1) Orange II is an  
(a) Azo (b) Basic (c) Acidic (d) a & c both
- (2) In 2,4-dinitro-1-naphthol nitro group acts as  
(a) Auxochrome (b) Chromophore (c) Chromogen (d) All
- (3) Which of the following statement is unsuitable to dye?  
(a) Must have a suitable colour.  
(b) Get fixed on the material to be dyed.  
(c) Resistant to organic solvent  
(d) All of the above

- (4) Crystal violet is a class of which dye?  
(a) Phthalein dyes (b) TPM dye (c) Mordant dye (d) azodye
- (5) Alizarin can be prepared by following name reaction  
(a) Reimer-Tiemann (b) Friedal-Crafts (c) Aldol Condensation (d) None
- (6) Metal complex azo dyes can be known as \_\_\_\_\_ dye.  
(a) Mordant (b) Vat (c) Ingrain (d) Azo
- (7) Yeast *Candida albicans* has ability to degrade following dye.  
(a) Direct Yellow (b) Direct Violet 51 (c) Direct Magenta 50 (d) Direct Blue
- (8) Which pigments have 30,000 to 34,999 index  
(a) Diazo (b) Biazo (c) Triazo (d) Tetraazo
- (9) Which of the following dye can be used as indicator?  
(a) Alizarin (b) Anthraquinone (c) Phenolphthalein (d) Indigo white
- (10) Congo red gives blue color at the  
(a)  $\text{pH} < 3$  (b)  $\text{pH} > 3$  (c)  $\text{pH} = 0$  (d)  $\text{pH} = 0.3$
- (11) \_\_\_\_\_ method is also very important to biodegrade azo dyes waste.
- (12) Para red dye is synthesized by coupling with diazotized p-Nitro aniline with \_\_\_\_\_.
- (13) Alizarin gives rose-red shade due to \_\_\_\_\_ ions as mordant.
- (14) \_\_\_\_\_ ketone is formed initially in the synthesis of Crystal violet.
- (15) Name the following dye?

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