

GUJARAT TECHNOLOGICAL UNIVERSITY**BE - SEMESTER-III • EXAMINATION – SUMMER • 2014****Subject Code: 133604****Date: 23-05-2014****Subject Name: Chemistry of Intermediates and Colorants - I****Time: 02.30 pm - 05.00 pm****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)** What is a Dye? How are dyes classified on the basis of method of application? **07**
(b) Give synthesis, application and uses of Anthraquinone. **07**

- Q.2 (a)** Explain why, **07**
a. Pyridine is more basic than pyrrole.
b. Pyridine is less basic than aliphatic amine.
c. Pyridine is aromatic.
(b) Define the term Electrophile and Nucleophile. Explain Electrophilic aromatic substitution reaction with the mechanism. **07**

OR

- (b)** What happen when Anthracene is treated with, **07**
a. Br_2/CCl_4
b. $\text{O}_2/\text{V}_2\text{O}_5$ at 500°C
c. $\text{HNO}_3/\text{CH}_3\text{COOH}$
d. $\text{Na}/\text{C}_2\text{H}_5\text{OH}$
e. $\text{Na}_2\text{Cr}_2\text{O}_7/\text{H}_2\text{SO}_4$
- Q.3 (a)** How will you synthesized following compound from ethyl acetoacetate? **07**
a. Crotonic Acid
b. Succinic acid
c. 2,4-Pentanedione
d. 2,5-Hexanedione
e. n-Butyric acid
(b) Write down only chemical reactions involved in following conversions: **03**
a. Naphthalene $\rightarrow$ Koch acid **03**
b. Koch acid $\rightarrow$ H-acid **04**

OR

- Q.3 (a)** Define the following term with example: **04**
a. Chromophor **04**
b. Auxochrome **03**
(b) Write a note on: **04**
a. Electrophilic substitution reaction of Pyridine. **04**
b. Nucleophilic substitution reaction of Pyridine. **03**
- Q.4 (a)** a. Explain Bucherer reaction. **03**
b. Give the synthesis of R-acid and G-acid. **04**
(b) Write a note on: Haworth synthesis of Anthracene. **07**

OR

- Q.4 (a)** a. How will you synthesize Amino G-acid and Amino J-acid from B-naphthylamine? **04**
b. Convert Benzene into Alizarin. **03**
- (b)** Discuss Hammett substitution constant. **07**
- Q.5 (a)** Write a note on: α -naphthol mono-sulfonic acid, di-sulfonic acid and tri-sulfonic acid. **07**
- (b)** a. Write a note on: Coal-tar Primaries. **03**
b. Distinguish between Dyes and Pigments. **04**

OR

- Q.5 (a)** What happens when,
a. Naphthalene is treated with concentrated sulfuric acid at 165°C . **07**
b. Naphthalene is warmed with concentrated $\text{HNO}_3 / \text{H}_2\text{SO}_4$.
a. Naphthalene is heated with oxygen in the presence of V_2O_5 .
- (b)** What is a Heterocyclic Compound? How is Pyrazolone synthesized? Describe its important reactions. **07**
