

GUJARAT TECHNOLOGICAL UNIVERSITY**BE - SEMESTER-V • EXAMINATION – WINTER • 2014****Subject Code: 153604****Date: 01-12-2014****Subject Name: Technology of Intermediates and Colorants****Time: 10:30 am - 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.

- Q.1 (a)** Explain “Nitration” as a unit process with following points: **07**
i) Mechanism
ii) Nitrating agents
iii) Important points to be considered in order to have safe reaction
- (b)** Toluene 368 kg is suspended in 4800kg of 65% sulphuric acid, mononitration is carried out using mixed acid having following composition **07**
2400 kg of mixed acid containing
Sulfuric acid 60%
Nitric acid 24%
Water 16%
1.1 mole of nitric acid is used for nitrating 1 mole of toluene
Calculate DVS ratio
- Q.2 (a)** Write the synthesis of H-acid and BON acid **07**
(b) 1) Write a note on solvents used for sulphonation **07**
2) Write a note on MSDS
- OR**
- (b)** Write a note on Halogenation. **07**
- Q.3 (a)** Write synthesis of **07**
i) anthraquinone
ii) aniline
iii) 2- naphthol
(b) Write a note on isomer separation. **07**
- OR**
- Q.3 (a)** Describe the principle and utility of Biazzi reactor and Schmidt reactor **07**
(b) 1) Describe Run away reaction **07**
2) Enlist the various raw materials available for synthesis of most of the intermediates in dyestuff technology
- Q.4 (a)** Draw the block diagram for sulphonation of Anthraquinone **07**
(b) Describe material of construction for the above question 4(a) **07**
- OR**
- Q.4 (a)** Classification of dyes based on application **07**
(b) Classify fibers and enlist the dyes used for the various fibers **07**
- Q.5 (a)** Write a note on reduction. **07**
(b) Write a note on oxidation as unit process **07**
- OR**
- Q.5 (a)** Draw process flow diagram for sulphonation of naphthalene using oleum **07**
(b) Write the mechanism for friedel craft’s alkylation and acylation **07**
