Seat No.: _____ Enrolment No._____

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: i) Mechanism ii) Nitrating agents iii) Important points to be considered in order to have safe reaction	**07**
	(b)	Toluene 368 kg is suspended in 4800kg of 65% sulphuric acid, mononitration is carried out using mixed acid having following composition 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	**07**
Q.2	**(a)**	Write the synthesis of H-acid and BON acid	**07**
	(b)	1) Write a note on solvents used for sulphonation 2) Write a note on MSDS	**07**
		OR	
	(b)	Write a note on Halogenation.	**07**
Q.3	**(a)**	Write synthesis of i) anthraquinone ii) aniline iii) 2- naphthol	**07**
	(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 2) Enlist the various raw materials available for synthesis of most of the intermediates in dyestuff technology	**07**
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**

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