Seat No.: _____ Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY

BE – SEMESTER – V (NEW) EXAMINATION – WINTER 2015

Subject Code: 2153604 **Date:10/12/2015**

Subject Name: Technology of Intermediates and Colorants

Time:10:30am to 1:00pm **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 the reduction reactor used in manufacturing of aniline from nitrobenzene with reference to the material of construction, various parameters.	**07**
	(b)	Discuss the various environmental perspectives of reactors which are the most important unit operation in a chemical process with reference to the degree of conversion of feed to desired products.	**07**
Q.2	**(a)**	Explain the continuous flow nitration process with the help of suitable diagrammatical representation.	**07**
	(b)	Describe the Construction, working and safety measures of batch nitrator.	**07**
		OR	
	(b)	Define sulfonation as a unit process and explain differnet safety factors.	**07**
Q.3	**(a)**	Write a note on Material Safety Data Sheet.	**07**
	(b)	Write a note on agitation systems and particle size reduction.	**07**
		OR	
Q.3	**(a)**	Write synthesis of anthrquinone and aniline.	**07**
	(b)	Explain the distillation process with the help of suitable diagram.	**07**
Q.4	**(a)**	Write the mechanism for friedel craft's alkylation and acylation	**07**
	(b)	Synthesis of J-acid & H-acid.	**07**
		OR	
Q.4	**(a)**	Define and explain DVS ratio.	**07**
	(b)	Write synthesis of BON-acid and 2-naphthol.	**07**
Q.5	**(a)**	Briefly explain the process of hydrogenation.	**07**
	(b)	Explain the manufacturing of important solvents used in Dyes & Pigments industries.	**07**
		OR	
Q.5	**(a)**	Briefly explain the process of halogenation.	**07**
	(b)	Briefly explain the oxidation process.	**07**

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