

**GUJARAT TECHNOLOGICAL UNIVERSITY**

**BE - SEMESTER- V (New) EXAMINATION – WINTER 2019**

**Subject Code: 2153604**

**Date: 21/11/2019**

**Subject Name: Technology of Intermediate & Colorants**

**Time: 10:30 AM TO 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.

		MARKS
<b>Q.1</b>	(a) Write a note on: unit operation.	<b>03</b>
	(b) Discuss about pressure vessel used in industry.	<b>04</b>
	(c) Explain the Process cooling/ Cooling water is used as an important utility used in chemical plants.	<b>07</b>
<b>Q.2</b>	(a) Write down the importance of DVS ratio in Nitration reaction.	<b>03</b>
	(b) Discuss Nitration in organic solvents.	<b>04</b>
	(c) Explain the aspects of unit operation with the help of fractional distillation.	<b>07</b>
	<b>OR</b>	
	(c) Explain the vacuum distillation in detail.	<b>07</b>
<b>Q.3</b>	(a) Write down the concept Distilling Off Solvents.	<b>03</b>
	(b) Discuss the mechanism of sulphonation reaction.	<b>04</b>
	(c) Explain the hybrid drying techniques with suitable diagrammatical representation.	<b>07</b>
	<b>OR</b>	
<b>Q.3</b>	(a) Write a note on: Filtration.	<b>03</b>
	(b) Discuss the effect of HNO <sub>2</sub> (Nitrous acid) on Nitration.	<b>04</b>
	(c) Explain the Bechamp reduction reaction.	<b>07</b>
<b>Q.4</b>	(a) How do you classify the isomers?	<b>03</b>
	(b) How do synthesized Phenol from Cumene process.	<b>04</b>
	(c) Give the synthesis of following: (i) Anthraquinone (ii) 2-naphthol	<b>07</b>
	<b>OR</b>	
<b>Q.4</b>	(a) List out the important solvents used in dyestuffs & pigments industry.	<b>03</b>
	(b) Discuss about structural isomers.	<b>04</b>
	(c) Give the synthesis of following: (i) Phenol by Dow's process (ii) Naphthol sulphonic acid	<b>07</b>
<b>Q.5</b>	(a) Write down the properties and application of reactive dyes.	<b>03</b>
	(b) Discuss the concept of particle size reduction.	<b>04</b>
	(c) Explain the layout of dye manufacturing plant.	<b>07</b>
	<b>OR</b>	
<b>Q.5</b>	(a) Write down the advantages & disadvantages of direct dyes.	<b>03</b>
	(b) Discuss the Halogenation reaction.	<b>04</b>
	(c) Explain the technology involved in synthesis of disperse dyes in details.	<b>07</b>

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