

**GUJARAT TECHNOLOGICAL UNIVERSITY****BE - SEMESTER– III (New) EXAMINATION – WINTER 2019****Subject Code: 3133604****Date: 5/12/2019****Subject Name: Introduction to colorants****Time: 02:30 PM TO 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.

		MARKS
<b>Q.1</b>	(a) What is colour? Enlist various colourants.	<b>03</b>
	(b) What are dyes? What are their functions?	<b>04</b>
	(c) Differentiate between dyes and pigments?	<b>07</b>
<b>Q.2</b>	(a) Give limitations of electrophilic substitution reaction.	<b>03</b>
	(b) Discuss about Hammett substitution constant.	<b>04</b>
	(c) Explain the electrophilic substitution reaction with suitable reaction scheme.	<b>07</b>
<b>OR</b>		
	(c) How do you synthesize the following: (i) Benzene 1,3-disulphonic acid (ii) Naphthalene 2,6 & 2,7 disulphonic acid	<b>07</b>
<b>Q.3</b>	(a) What are acid dyes? Give their applications.	<b>03</b>
	(b) What are extenders? Give their functions.	<b>04</b>
	(c) Give the classification of dyes on the basis of application?	<b>07</b>
<b>OR</b>		
<b>Q.3</b>	(a) Discuss about active methylene compound with their structural formula.	<b>03</b>
	(b) Discuss about functional group with structural features of organic molecules.	<b>04</b>
	(c) How do you synthesize the following: (i) Koch acid (ii) 1-naphthol-4 sulphonic acid	<b>07</b>
<b>Q.4</b>	(a) What are light primaries? Enlist them.	<b>03</b>
	(b) Explain the applications of pigments.	<b>04</b>
	(c) What is colour blindness? Explain its various forms.	<b>07</b>
<b>OR</b>		
<b>Q.4</b>	(a) What is additive colour mixing?	<b>03</b>
	(b) Explain the functions of pigments.	<b>04</b>
	(c) With working, principle & diagram, explain Reflectance spectrophotometer?	<b>07</b>
<b>Q.5</b>	(a) Identify the functional group present in following compound: (i) Alkyl Halide (ii) Ketone (iii) Ester.	<b>03</b>
	(b) Discuss Enols with their reaction scheme.	<b>04</b>
	(c) Explain classification of pigments with example	<b>07</b>
<b>OR</b>		
<b>Q.5</b>	(a) Discuss Enolates with their reaction scheme.	<b>03</b>
	(b) Write down the nitration reaction scheme under electrophilic substitution reaction.	<b>04</b>
	(c) Explain the influence of functional group on following properties with suitable examples: Solubility (ii) Reactivity	<b>07</b>

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