

**GUJARAT TECHNOLOGICAL UNIVERSITY**  
**BE - SEMESTER-VII (NEW) EXAMINATION – WINTER 2023**

**Subject Code:3173620****Date:08-12-2023****Subject Name: Technology of Pigments****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.
4. Simple and non-programmable scientific calculators are allowed.

		MARKS
<b>Q.1</b>	(a) What are functional pigments?	<b>03</b>
	(b) Give the industrial applications anti-corrosive pigments.	<b>04</b>
	(c) Discuss the concept of corrosion with corrosion resistance mechanism?	<b>07</b>
<b>Q.2</b>	(a) What is special effect? Enlist the examples of special effect pigments.	<b>03</b>
	(b) Give the classification of effect pigments on the basis of: 1. Refractive indices 2. Optical impressions?	<b>04</b>
	(c) Explain the following pigments with reference to their optical properties: i) absorption ii) metal effect iii) natural pearl iv) pearl luster pigments	<b>07</b>
	<b>OR</b>	
	(c) Give the types of aluminum pigments with their manufacturing process, properties, and applications?	<b>07</b>
<b>Q.3</b>	(a) Define: Passivation	<b>03</b>
	(b) Write a short note on: Iron Oxide Pigments	<b>04</b>
	(c) Explain Zinc Tetroxy Chromate based primer formulation with roles of each ingredient.	<b>07</b>
	<b>OR</b>	
<b>Q.3</b>	(a) What is flip flop effect?	<b>03</b>
	(b) Define copper-based pigments with example.	<b>04</b>
	(c) Explain the Antifouling Coating with its functions?	<b>07</b>
<b>Q.4</b>	(a) Explain Distinctness of Image with its significance.	<b>03</b>
	(b) What is pearl effect? What are Pearl luster Pigments? Give their properties.	<b>04</b>
	(c) Explain the manufacturing process of Mica-CaCO <sub>3</sub> pigments?	<b>07</b>
	<b>OR</b>	
<b>Q.4</b>	(a) Give the applications of Ultramarine Blue Pigments?	<b>03</b>
	(b) Write a short note on: Prussian Blue Pigments	<b>04</b>
	(c) With neat flow sheet, give synthesis & applications of Copper Phthalocyanine pigments?	<b>07</b>
<b>Q.5</b>	(a) Write a short note on: Vanadium Pigments	<b>03</b>
	(b) Give manufacturing, properties and applications of Chromium Oxide Green Pigments	<b>04</b>
	(c) Give synthesis and applications of cadmium Pigments?	<b>07</b>
	<b>OR</b>	
<b>Q.5</b>	(a) What are Nacreous Pigments? Explain their features.	<b>03</b>
	(b) Give the difference between colored and effect pigments?	<b>04</b>
	(c) Give the industrial applications of mixed metal oxides?	<b>07</b>

\*\*\*\*\*