

GUJARAT TECHNOLOGICAL UNIVERSITY

BE- SEMESTER-VII (NEW) EXAMINATION – WINTER 2020

Subject Code:2173613

Date:19/01/2021

Subject Name: Specialty Pigments & Recent development in Pigment Technology

Time:10:30 AM TO 12:30 PM

Total Marks: 56

Instructions:

1. Attempt any FOUR questions out of EIGHT questions.
2. Make suitable assumptions wherever necessary.
3. Figures to the right indicate full marks.

MARKS

Q.1	(a)	Write down the special features of special effect pigment.	3	
	(b)	Explain the following terms:	4	
		(i) Lightness flop (ii) Colour flop		
(c)	Explain the optical properties of following pigment with suitable diagram:			
	A) Conventional pigment; B) Metal effect pigment;		7	
	C) Natural pearl; D) Pearl luster pigment.			
Q.2	(a)	Write a note on: Mica pigment	3	
	(b)	Discuss the two main types of underwater antifouling coatings.	4	
	(c)	Explain the Insoluble matrix based on antifouling paint formulation.	7	
Q.3	(a)	Define the following:	3	
		(i)Cluster (ii) Colloids (iii) Nanoparticle		
		(b) How do you synthesis of TiO ₂ by sol gel method?	4	
(c)	Explain the synthesis of silver nanoparticles by reduction by tri-sodium citrate and sodium borohydride.		7	
	Q.4	(a)	Write down the two main reasons with respect to the properties of materials can be different at the Nano scale.	3
		(b)	Elaborate the synthesis of silver nanoparticles by using laser ablation method.	4
(c)		Explain the properties and applications of Nano pigment in detail.	7	
Q.5	(a)	Write down the various ways of anticorrosive pigments can affect the performance of protective coatings.	3	
		Write down the importance of anticorrosive pigments.	4	
		Explain the following mechanism of anticorrosive pigment:	7	
(i)Active pigment (ii) Barrier pigment (iii) Sacrificial Pigment				
Q.6	(a)	Give the application methods of phosphorescent pigments.	3	
	(b)	Write down the characteristics and applications of pearlescent pigment.	4	
	(c)	Explain the micaceous iron oxide pigment in details.	7	
Q.7	(a)	Write down the importance of anticorrosive pigment.	3	
	(b)	Discuss the Benefits of High- and Low-Strength Colorants.	4	
	(c)	Write a note on following: (i) Biocides (ii) Micro fouling	7	

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| Q.8 | (a) | Write a note on: Ultrasonic cavitation | 3 |
| | (b) | Discuss the concept of thermochromism with suitable example | 4 |
| | (c) | What is meant by Pigment Tinters? Discuss the formulation of Pigment Tinters with role of each ingredient. | 7 |

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