

**BIRLA INSTITUTE OF TECHNOLOGY, MESRA, RANCHI
(END SEMESTER EXAMINATION)**

**CLASS: BTECH
BRANCH: CHEMICAL ENGINEERING**

**SEMESTER : VII
SESSION : MO/2025**

SUBJECT: CL441 PAINTS AND SURFACE COATING TECHNOLOGY

TIME: 3 Hours

FULL MARKS: 50

INSTRUCTIONS:

1. The question paper contains 5 questions each of 10 marks and total 50 marks.
 2. Attempt all questions.
 3. The missing data, if any, may be assumed suitably.
 4. Before attempting the question paper, be sure that you have got the correct question paper.
 5. Tables/Data hand book/Graph paper etc. to be supplied to the candidates in the examination hall.
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Q.1(a)	Discuss the main function of pigments in paint. Discuss the mechanism of film formation for oleo resinous binder.	[5] 1	2
Q.1(b)	Discuss the effect of the hydroxyl number of acrylic resin on the final properties. Show the reaction scheme for the preparation of glycidyl meth acrylate.	[5] 2	3
Q.2(a)	Write the self addition reaction of isocyanate. Define bleeding characteristics of pigment. Define hiding power of pigments.	[5] 2	2
Q.2(b)	Write the different varieties of Iron oxide pigment. Discuss the functions of extenders. Discuss the interference behavior of pearlescent pigments.	[5] 3	3
Q.3(a)	Write short notes on electrophoretic deposition in paint applications. Discuss the different types of pickling method for surface preparations.	[5] 3	2
Q.3(b)	Classify different types of marine fouling. Discuss the biocidal technology for hybrid self polishing copolymers for marine paints.	[5] 3	3
Q.4(a)	Briefly discuss the composition of radiation cured coatings. Give examples of five different additives and its functions in paint formulations.	[5] 5	4
Q.4(b)	Discuss the functions of N-vinyl caprolactum in paint formulations. Discuss the possible reasons in corrosion and its prevention of paint defects.	[5] 4	4
Q.5(a)	Discuss the three dimensional color representation in L, a, b scale. Classify three main categories of gloss.	[5] 4	4
Q.5(b)	Give an example of typical printing ink formulation with its functional properties. Write the short notes on rotogravure printing.	[5] 5	5

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