

BIRLA INSTITUTE OF TECHNOLOGY, MESRA, RANCHI  
(MID SEMESTER EXAMINATION)

CLASS: BTECH  
BRANCH: CHEMICAL ENGINEERING

SEMESTER : VII  
SESSION : MO/2025

SUBJECT: CL441 PAINTS AND SURFACE COATING TECHNOLOGY

TIME: 02 HOURS

FULL MARKS: 25

**INSTRUCTIONS:**

1. The question paper contains 5 questions each of 5 marks and total 25 marks.
  2. Attempt all questions.
  3. The missing data, if any, may be assumed suitably.
  4. Tables/Data handbook/Graph paper etc., if applicable, will be supplied to the candidates
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Q.1(a)	Discuss the main function of pigments in paint	[2] 1	1
Q.1(b)	Explain the functions of solvent in paint formulations. Show the relationship between solubility parameter and group contribution	[3] 1	2
Q.2(a)	Differentiate between polyurethane and polyurea	[2] 2	2
Q.2(b)	Define iodine number of oil. Discuss the thermodynamic basis for polymer solubility.	[3] 1	2
Q.3(a)	Show the reaction scheme for the preparation of oil based alkyd	[2] 3	3
Q.3(b)	Write the reaction scheme for novolac resin. Mention the defects in the structure of epoxy resin.	[3] 2	3
Q.4(a)	Differentiate between agglomerate and aggregate	[2] 2	2
Q.4(b)	Discuss the advantage of ZnS over TiO <sub>2</sub> . Define tinting strength of pigment.	[3] 3	2
Q.5(a)	Differentiate between Toner and Lakes	[2] 2	2
Q.5(b)	Discuss leafing and non leafing varieties of aluminum pigments. Define PVC and CPVC of pigments in paint composition	[3] 3	3

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