BIRLA INSTITUTE OF TECHNOLOGY, MESRA, RANCHI
(MID SEMESTER EXAMINATION SP/2024)

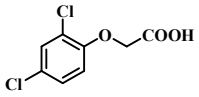
CLASS: IMSc **SEMESTER : VI**
BRANCH: CHEMISTRY **SESSION : SP/2024**

SUBJECT: CH328 ORGANIC CHEMISTRY-V

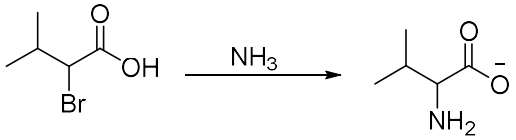
TIME: 02 Hours **FULL MARKS: 25**

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: NO**

			CO	BL
Q.1(a)	What is FGI is retro-synthesis? Give suitable example.	[2]	1	1
Q.1(b)	Describe the disconnection guidelines.	[3]	1	2
Q.2(a)	Give the possible resonance structure of naphthalene and comment on the stable one.	[2]	2	2
Q.2(b)	Show all possible disconnection pathway for following compound and comment on the best one.	[3]	1	3



Q.3(a)	Write the steps of any synthesis of naphthalene.	[2]	2	1
Q.3(b)	Outline the chemical proof to explain naphthalene contains two fused benzene rings at ortho position.	[3]	2	3
Q.4(a)	Give one example of a non-polar amino acid with its structure.	[2]	3	1
Q.4(b)	Write the mechanism of the following synthesis.	[3]	3	3



Q.5(a)	Define Zwitterion and Isoelectric point.	[2]	3	1
Q.5(b)	Choose the correct answer.	[3]	3	2

i) When the pH of an amino acid solution is equal to the pK_a of its carboxylic then,
- **a.** the amino acid is in neutral form
- **b.** all the basic groups are in protonated form
- **c.** all the acidic groups are in protonated deform
- **d.** 50% of amino acids will be in protonated form and 50% will be in Zwitter ionic form.

ii) What is the pI of an amino acid if pK_a1 and pK_a2 are 2 and 9 respectively?
- **a.** 4
- **b.** 6
- **c.** 5.5
- **d.** 7

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