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DEPARTMENT OF SCIENCES, IV SEMESTER M.Sc. (Chemistry) END SEMESTER EXAMINATIONS, APRIL 2023 SUBJECT NAME: Advanced Organic Chemistry-II [CHM 6251] (CHOICE BASED CREDIT SYSTEM - 2021)

Time	e: 3 Hours Date:24 Apr 2023	MAX. MARKS	S: 50	
Note	(i) Answer ALL questions(ii) Draw sructures, chemical reaction and mechanism wherever necessary			
QNo 1A	Question i) Explain thermal and photochemical ring opening reactions of thiirane ii) Describe the synthesis and chemical properties of aziridine	Marks 2 2	CO 1	BL 2
1B	 i) Explain electronic and magnetic criteria of aromaticity in heterocycles ii) Predict the product/s in the following reactions. a) a) AlCl₃ / Benzene H⁺ Predict He product/s in the following reactions. b) 	2 2	1	3
1C	Write the product/s in the following reactions i) $(i) = \frac{i + CHCOOEt}{ii + H^+}$? ii) $(i) = \frac{N}{O}$ $(i) = \frac{LAH}{I}$?	2	2	2
2A	i) Explain electrophilic and nucleophilic substitution reaction of indoleii) Describe the photochemical isomerization of isoxazoles	2 2	2	2
2B	i) Explain the structure and bonding and reactivity of Imidazoleii) Write two general methods for 1,2-azole synthesis.	2 2	2	3
2C	Describe the synthesis of pyrimidine from malic acid	2	2	3
3A	i) With proper reason explain the more favorable positions for electrophilic a nucleophilic substitution reactions in pyridineii) Explain the synthesis of pyridazine starting from maleic anhydride	nd 2 2	2	2
3B	Outline the process sequence involved in the isolation of monoterpenoids from plant material. Justify each process.	m the 4	3	2
3C	Write the Hoffmann degradation product and Emde degradation product for following molecule.	the 2	4	2



4A	Propose any four chemical tests to elucidate the following structure.	4	3	3
4B	Discuss the difficulty associated with structure elucidation of carotenoids. Discuss how two monoterpenoids with same molecular formula can be (a) acyclic and (b) bicyclic.	4	4	3
4C	Propose the reaction scheme for the following conversion, starting from 4- nitrobenzaldehyde.	2	3	3
5A	A steroid has the following chemical structure. Will this steroid undergo degradation reaction? If so, which one and what is the degradation product.	4	4	3
	COOCH3			
5B	What are flavones and isoflavones? Propose a reaction scheme for the preparation of	4	4	2

the following molecule.



2

3

3

5C Justify your statement: It is easy to differentiate the following two molecules.

