No. of Printed Pages : **2**

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Sl. No.

M.Sc. II Semester Degree Examination, October - 2023

INDUSTRIAL CHEMISTRY

DSC 6 - Chemistry of Natural Products, Reagents in Organic Synthesis and Heterocyclic compounds

(NEP)

Time : 3 Hours Maximum Marks : 70

Note : *(i) Answer **any five** of the following questions with Question No. **1** is **Compulsory**.*

*(ii) **All** questions carry **equal** marks.*

1. (a) Formulate a method for the synthesis of santonin. **4+3+4+3=14**

(b) What are alkaloids ? Give their classifications.

(c) Discuss the general methods of structural elucidation of terpenoids.

(d) Sketch the structure of cholesterol and ergo sterol.

2. (a) Account on structural elucidation of sucrose. **5+4+5=14**

(b) Discuss the solid phase synthesis of peptides.

(c) Explain the double helix structure of DNA.

3. (a) Discuss the Hantzsch synthesis of pyridine and explain its electrophilic substitution reactions. **6+4+4=14**

(b) Account on comparison of basecity of pyrrole, pyridine and piperidine.

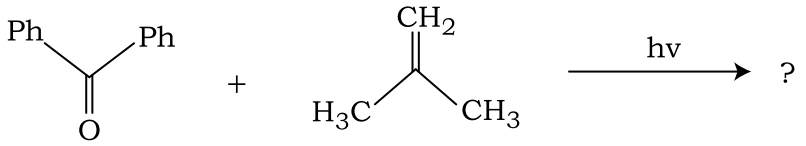
(c) Explain the stepwise mechanism in the synthesis of quinoline by the Skraup method.

4. (a) Discuss the synthetic applications of DDQ. **6+3+5=14**

(b) What is Gilman Reagent ? Write its two applications in organic synthesis.

(c) Propose the mechanism for Peterson olefination.

5. (a) Predict the product with mechanism : **4+6+4=14**



(b) Discuss the mechanism of Norrish Type-I and Norrish Type-II reactions taking suitable example.

(c) State Frank-Condon principle and give its significance in photochemistry.

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6. (a) Give an account on primary and secondary structures of proteins. **6+5+3=14**

(b) Write the structures on purine and pyrimidine bases present in nucleic acids.

(c) Formulate a method for the preparation of pyrrole.

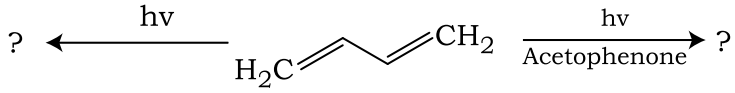
7. (a) Discuss the mechanism of Fischer indole synthesis. **5+4+5=14**

(b) Account on comparative aromaticity of pyrrole, furan and thiophene.

(c) Explain the synthetic applications of selenium dioxide.

8. (a) Explain Woodward and Prevost dihydroxylation with mechanism. **6+4+4=14**

(b) Write the products in the following reaction :



(c) Write short note on photodimerization.

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