**2024**

**M.Sc.**

**4thSemester Examination**

**CHEMISTRY**

**PAPER – CEM-402 (Organic Special)**

***Full Marks : 50***

***Time : 2 Hours***

***(CEM 402-Advanced Organic Chemistry-III)***

**Group A**

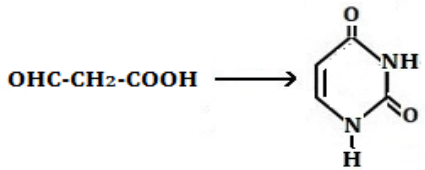
Answer any ***four*** bits: 2×4 = 8

1. Write down the basic structure of the DNA sequence ACGTA.
2. What is meant by Norrish type-II reaction?
3. What is the function of mRNA?
4. What is vibrational cascade?
5. What do you mean by ISC?
6. Discuss the function of Thiamine.

**Group B**

Answer any ***four*** bits: 4×4 = 16

7. Write down the mechanism of Barton reaction.
8. Complete the following transformation with mechanism.




9. Draw Jablonoski Diagram and show the different transitions of excited states of molecules.
10. Briefly describe the function of RNA in protein synthesis.
11. Define Norrish type-I reaction. Explain that reaction with suitable example.
12. What do you mean by Paternó-Büchi reaction? Give an example.

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## Group B

Answer any ***four*** bits: 4×4 = 16

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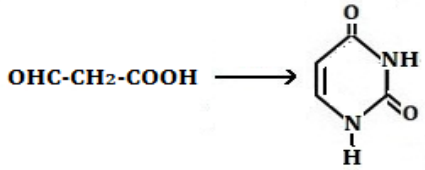
8. Complete the following transformation with mechanism.

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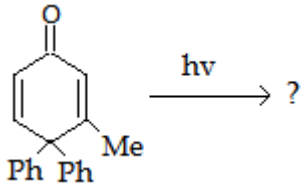
## Group C

Answer any ***two*** questions 2×8 = 16

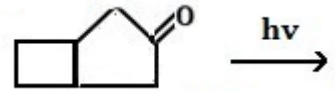
13. (i) How will you synthesize pyridazine from maleic anhydride and hydrazine? (ii) Convert the 4-ketoester to 3-hydroxy 6-methyl pyridazine. (iii) What are the functions of vit A? 3+3+2
14. (i) What is di-π-methane rearrangement reaction? Explain the mechanism of that reaction with suitable example. 4

    (ii) Indicate all the mechanistic steps of the following reaction.



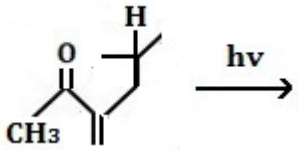

    Does this reaction follow the mechanism of di-π-methane rearrangement? 4
15. Predict the product of the following reactions with plausible mechanism.

i]




4

ii]




4

16. (i) Describe the mechanism of action of Penicillin. (ii) Describe structure activity relationship (SAR) of different functional group of Penicillins. 4+4

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**Internal Assessment-10**