Registration No.: | | | | | | | | | | |

Total Number of Pages: 03 **Course: M.Sc.I**

Sub_Code: FCYC801

8th Semester Regular Examination: 2024-25

SUBJECT: Organic Chemistry-VI

BRANCH(S): M.Sc.I(AC)

Time: 3 Hours

Max Marks: 70

Q.Code: S019

Answer Question No.1 (Part-I) which is compulsory, any five from rest (Part-II)

The figures in the righthand margin indicate marks.

Part-I

Q1 **Answer the following questions:** **(2 x 10)**

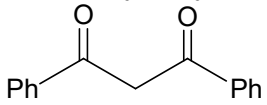
a) Define synthon and retron with examples.

b) Give two examples of protecting reagents for the amine group.

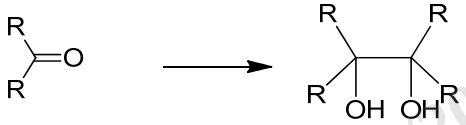
c) Mention one use of acetylene in organic synthesis.

d) What do you mean by linear and convergent synthesis?

e) How can you synthesize the following compound?

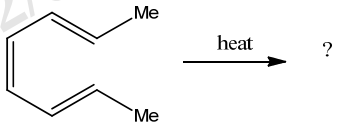


f) How can you carry out the following transformation?



g) What is the impact of kinetic and thermodynamic factors on the formation of five membered ring?

h) Predict the product of



i) Write the selection rule of sigmatropic rearrangement for 4n and 4n + 2 system.

j) Define Chelotropic reaction with an example.

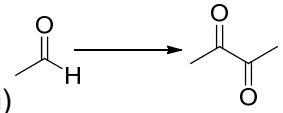
Part-II

Long Answer Type Questions (Answer Any five)

Q2 **a)** Define synthetic equivalent and FGI with examples. **(4 + 6)**

b) Using umpolung, carry out the following transformations.

(i)



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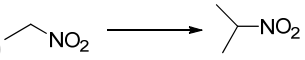
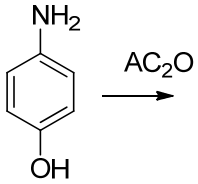
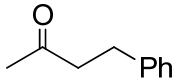


Q3 **a)** What is a chemoselective reaction? Discuss the chemoselectivity of the following reactions. **(4 + 6)**



b) Outline the retrosynthesis of the following molecules.

(i)



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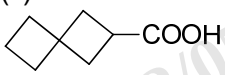
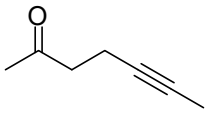
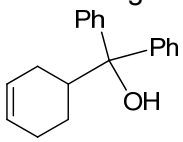


Q4 **a)** Outline the retrosynthesis of the following molecules. **(6 + 4)**

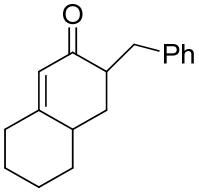


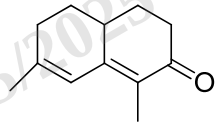


b) Discuss the regioselectivity with suitable example

Q5 **a)** Discuss the two group C-C disconnection with reference to Michel addition reaction. **(4 + 6)**

b) Outline the retrosynthesis of the following molecules.

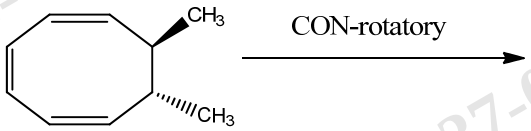




Q6 **a)** Draw the correlations diagram of 1, 3-butadiene system in electro-cyclic reaction.

b) Predict the product. **(4 + 6)**

(i)



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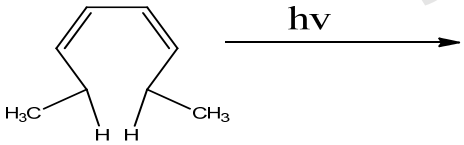
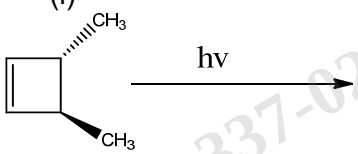


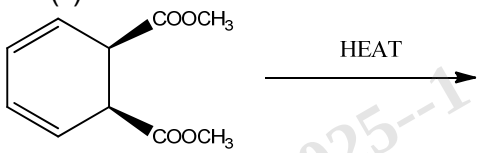
Q7 **a)** Explain the Woodward-Hoffmann correlation diagram for (4n + 2)π for cyclo-addition reaction. **(6 + 4)**

b) Predict the product.

(i)



(ii)



Q8 **a)** Define FMO? Draw the FMO diagram of 4n and 4nπ. **(6 + 4)**

b) Predict the product.