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

Total Number of Pages : 02 **M.Sc.I**

FCYC801

8th Semester Regular Examination 2017-18

ORGANIC CHEMISTRY - VI

BRANCH : M.Sc.I(AC)

Time : 3 Hours

Max Marks : 70

Q.CODE : C123

Answer Question No.1 which is compulsory and any five from the rest.

The figures in the right-hand margin indicate marks.

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

a) What do you mean by connective transform? Give an example.

b) Explain the concept of reversal polarity with an example.

c) Protecting groups are considered a "Necessary Evil" in multistep organic synthesis. Comment.

d) Define the terms "Donor Synthon" and "acceptor synthon" with suitable examples.

e) Discuss the Regioselectivity in Diels-Alder reaction with example.

f) What are Sigmatropic rearrangement ? Give example.

g) Discuss Wittig reaction via retrosynthetic analysis.

h) What is Cyclisation reaction? Explain with suitable example.

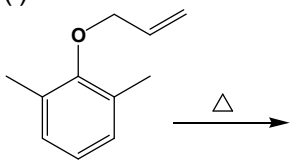
i) Discuss cope and Claisen rearrangement with suitable example.

j) Classify Pericyclic reactions.

Q2 **a)** Explain 1,3-Dipolar cycloaddition reaction with suitable examples. **(4)**

b) Predict the product of the following reactions **(6)**

(i)



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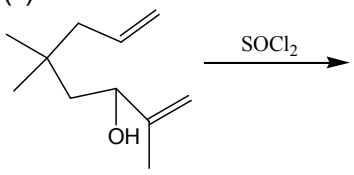

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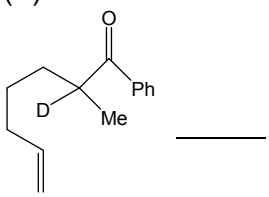

Q3 **(a)** What is a protecting group? Discuss its significance in organic synthesis. Mention the criteria for choosing a protecting group. **(5)**

(b) Discuss the role of acetals, ketals and ethers as protecting groups for alcohol. Give the mechanism of deprotection. **(5)**

Q4 **Write short notes on the followings :**

a) Chemoselectivity **(3)**

b) Fluxional tautomerism **(3)**

c) Diels-Alder reaction **(4)**

Q5 **a)** Discuss two group C-C disconnection with reference to Michael addition. **(5)**

b) What is Robinson annellation? How this can be used in a two group C-C disconnection? **(5)**

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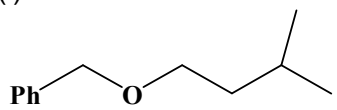
Q6 Outline the synthesis of the following target molecules using disconnection approach. **(10)**

(i)



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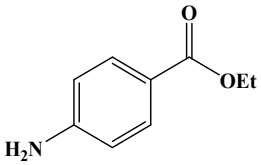

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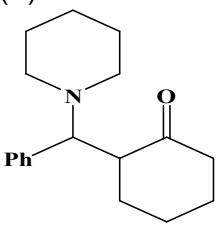

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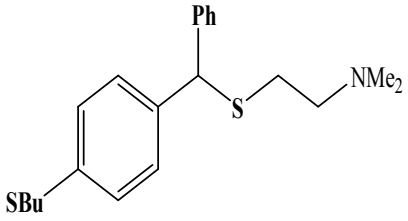

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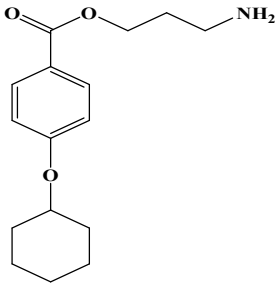
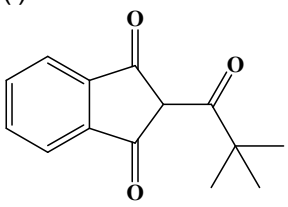
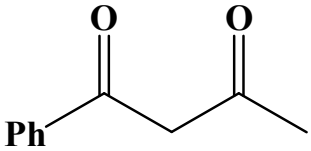


Q7 **a)** Discuss the synthesis of the following 1,3-difunctionalised compounds using disconnection approach. **(5)**

(i)



(ii)



b) Why the C-X disconnection for amines is different than that of ethers and sulphides? What are the two-different routes by which amines can be synthesized? Explain with suitable examples. **(5)**

Q8 **a)** "In cycloaddition reaction, a $\pi^4S + \pi^2S$ reaction is photochemically forbidden while thermally allowed." Justify the validity of the statement by taking suitable example through FMO approach as well as correlation diagram. **(4)**

b) Predict the product(s) of the following pericyclic reactions. Write down the stereochemistry wherever applicable. **(6)**