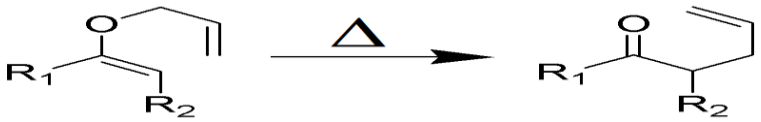
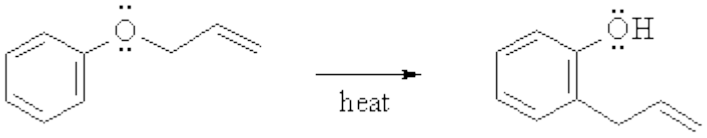
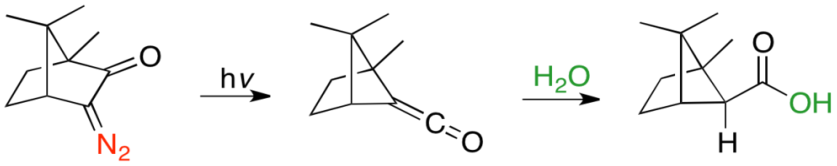
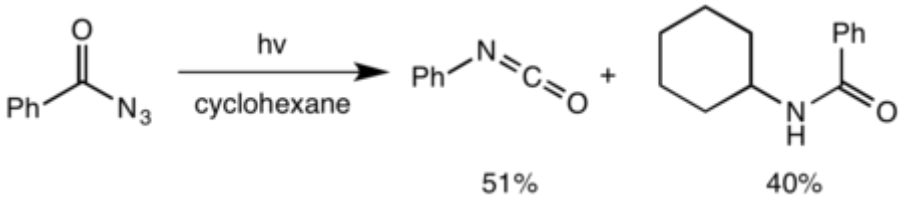
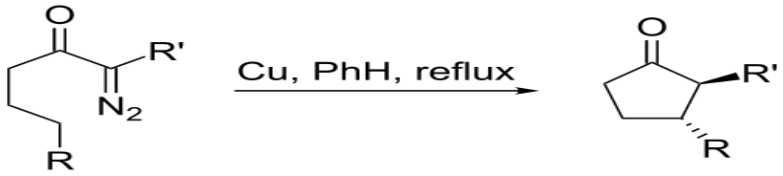
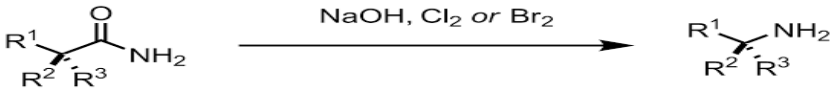
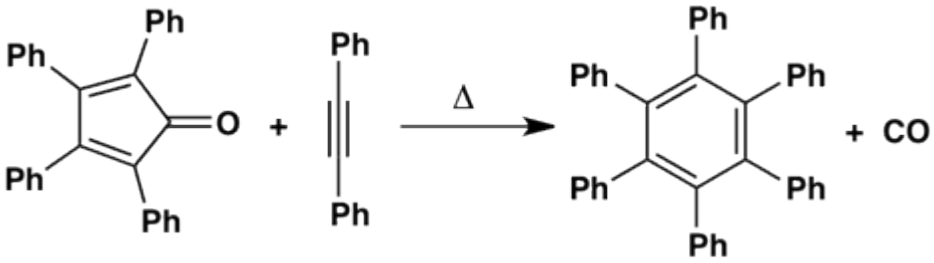
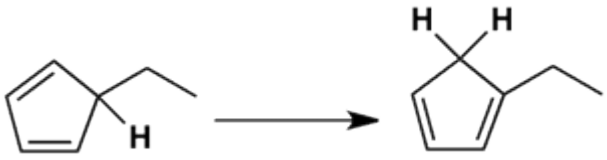
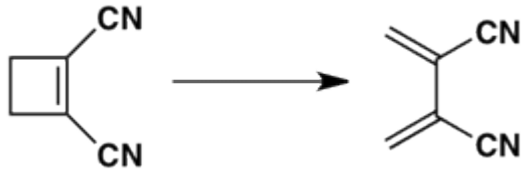
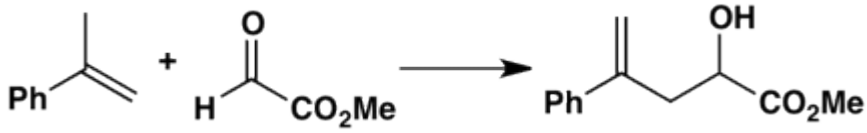
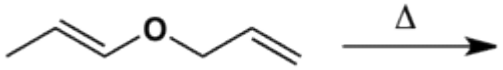
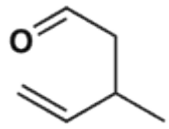
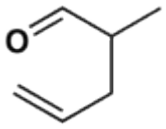
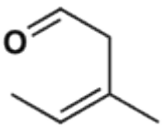
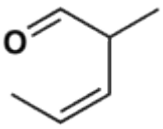
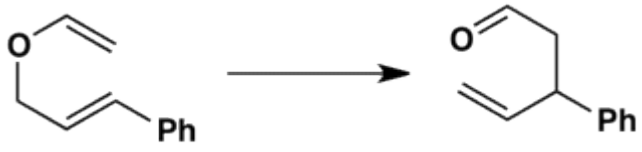
MSc paper I (SEMIII)

QUESTION BANK

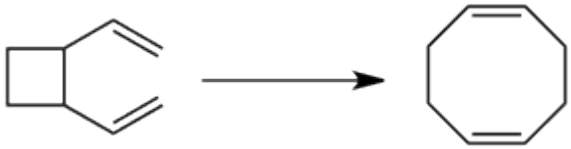
1	What is the hybridisation of carbocation? a) SP^3 b) SP^2 c) SP d) SP^3d
2	What is the hybridisation of carbanion? a) SP^3 b) SP^2 c) SP d) SP^3d
3	The shape of carbocation is a) Trigonal planar b)linear c) pyramidal d) bent
4	Identify the name of rearrangement in the following reaction  a) Claisen rearrangement b) Hofmann rearrangment c) Cope rearrangement d) Pinacol-pinacolone rearrangement
5	Identify the name of rearrangement in the following reaction  a) Cope rearrangement b) Hofmann rearrangment c) Claisen rearrangement d) Pinacol-pinacolone rearrangement

6	The following reaction involves the formation of ----------intermediate.  a) ketene b)nitrene c) free radical d)carbanion
7	The following reaction involves the formation of ----------intermediate  a) nitrene b) carbene c) carbanion d) free radical
8	The following reaction involves the formation of ----------intermediate  a) carbanion b) carbene c) nitrene d) carbocation
9	Give the name of following rearrangement reaction.  a) Curtius rearrangement b)Lossen rearrangement c) Hoffmann rearrangement d) Cope rearrangement
10	The following reaction is not a example of [3,3] sigmatropic reaction.

10	a) Claisen rearrangement b) Cope rearrangement c) Witting rearrangement d) none
11	The following reaction is not a example of pericyclic reaction a) Claisen rearrangement b) Cope rearrangement c) Diels-Alder reaction d) Schmidt rearrangement
12	The following involves two pericyclic reactions. Which combination indicates correctly the types of reaction involved?  a)[4+2] cycloaddition + [2+2] cycloreversion **b)** cheletropic reaction + [4+2] cycloaddition **c)** [4+2] cycloaddition + [4+1] cycloreversion **d)** [4+2] cycloaddition + cheletropic reaction Answer d
13	Which of the following reactions is classified as a sigmatropic rearrangement? a) 

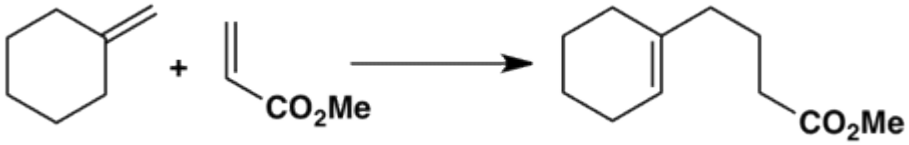
13	b)  c)  d) 
14	Which of unsaturated aldehydes (a)-(d) is the sigmatropic rearrangement product obtained by heating the following ether?  a)  b)  c)  d) 
15	Which of the following reactions is classified as an ene reaction? a) 

b)

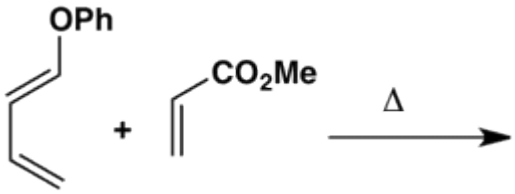


c)

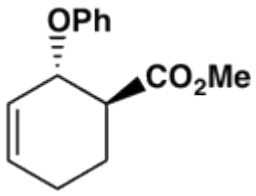
d)



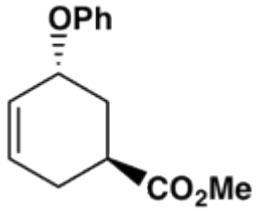
16 Which of adducts (a)-(d) is the main kinetic product of the following Diels-Alder reaction?



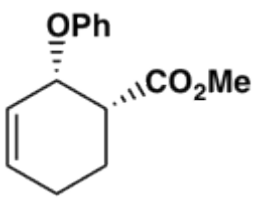
a)



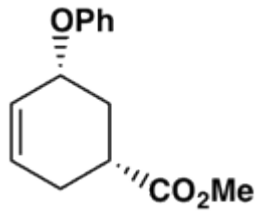
b)

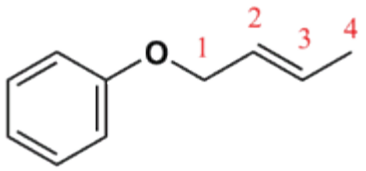
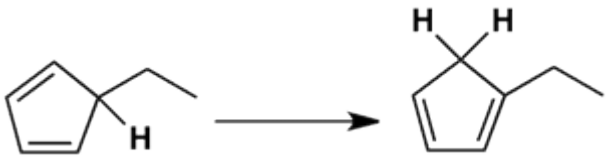
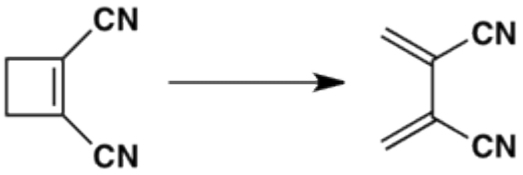
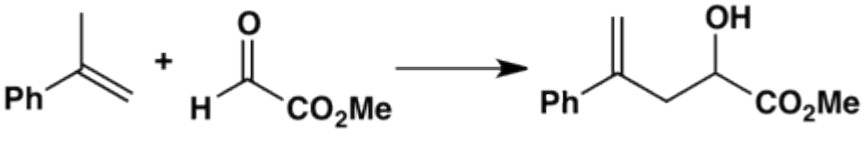


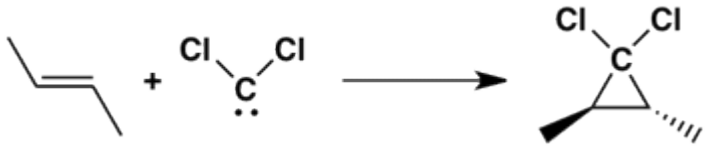
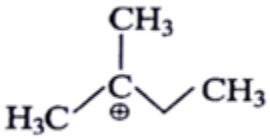
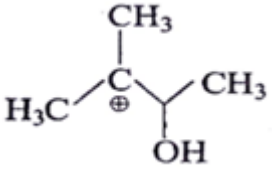
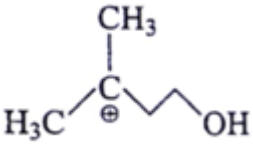
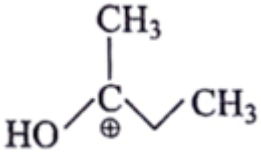
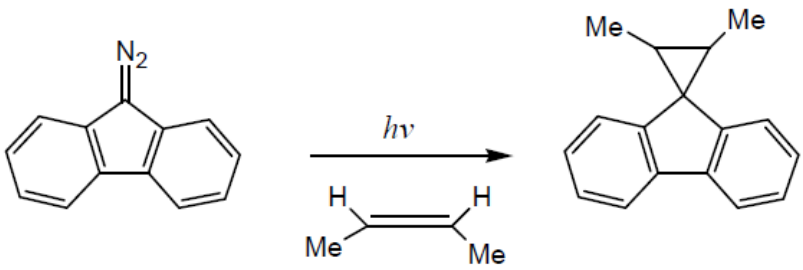
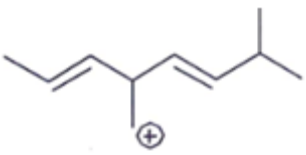
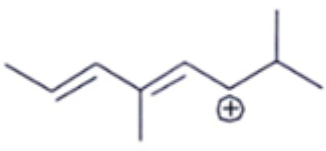
c)

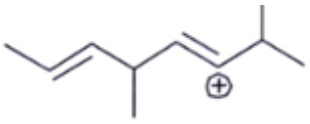
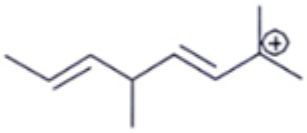
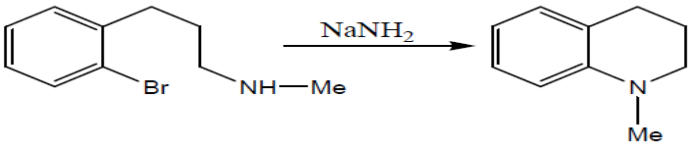
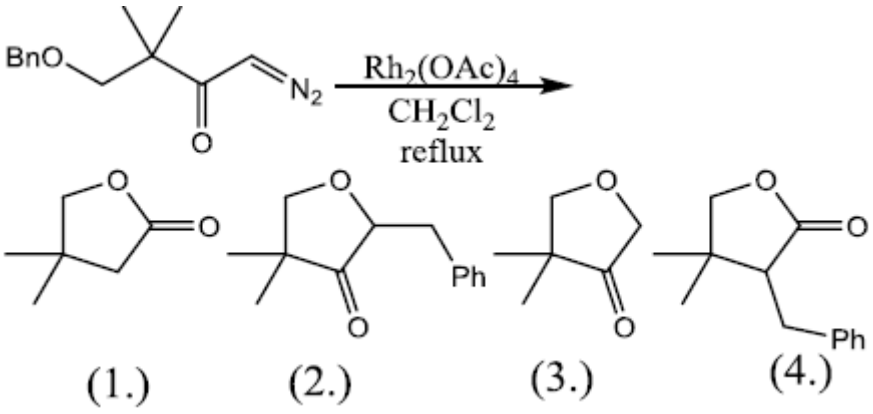
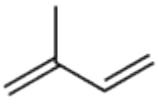
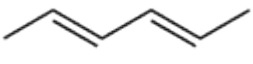


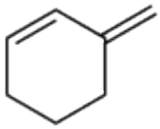
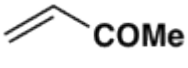
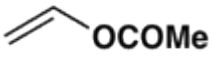
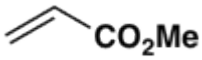
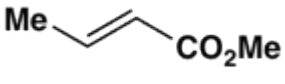
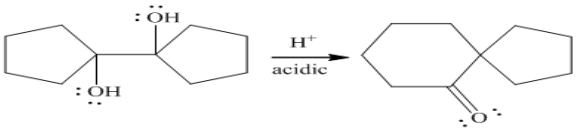
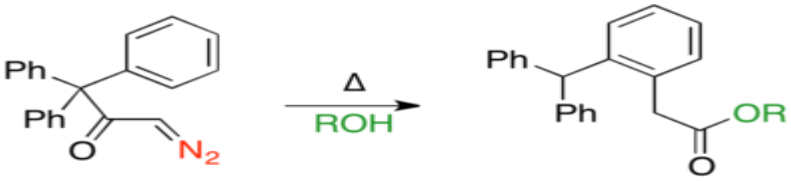
d)

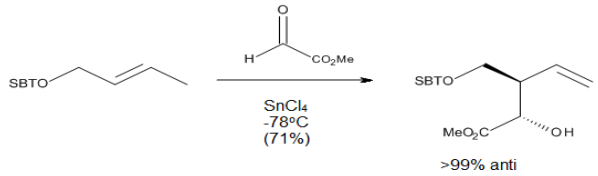


17	Which side-chain carbon makes a new bond to the benzene ring upon Claisen rearrangement of the following allylic phenyl ether?  a) C1 b)C2 c) C3 d)C4
18	Which of the following is classified as an electrocyclic reaction? a)  b)  c) 

	d) 
19	Which of the following is most stable intermediate? a)  b)  c)  d) 
20	What is the intermediate formed in the following reaction  a)carbanion b) carbocation c) free radical d) carbene
21	Which carbocation is the most stable? a)  b) 

	c)  d) 
22	The reactive intermediate involved in the following reaction is:  a) a carbocation b) a carbanion c) a free radical d) an aryne
23	The major product formed in the following reaction is…  Answer (2)
24	Which of the following dienes cannot undergo Diels-Alder reactions? a)  b) 

	c)  d) 
25	Which of the following dienophiles is the most reactive in normal Diels-Alder reactions? a)  b)  c)  d) 
26	Identify the name of the rearrangement involved the following reaction  a) Pinacol-pinacolone rearrangement b) Claisen rearrangement c) Hofmann rearrangment d) Cope rearrangement
27	Identify the name of the rearrangement involved the following reaction  a) Claisen rearrangement b) Wolf rearrangement c) Hofmann rearrangment d) Cope rearrangement

28	Which is the correct statement about neighboring group participation ? a) Retention of configuration b) Neighbouring group should have syn configuration c) Inversion of configuration d) No change in rates of reaction
29	Following reaction is a example of  a)Ene reaction b) Chelotropic reaction c) Sigmatropic reaction d) Group transfer
29	Which of the following statement about pericyclic reaction is not true a)Pericyclic reactions are concerted reactions b) Pericyclic reactions proceed through cyclic transition intermediate c) Pericyclic reactions are not stereospecific d) Pericyclic reactions require light or heat
30	What is the product of the following electrocyclic reaction?  a) b) c) d)