

Raja NL Khan Women's College (Autonomous)

PG End SEMESTER-I Examination -2022

Subject: Organic Chemistry :: Paper-CEM-102

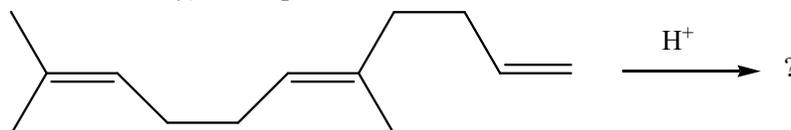
F.M-40.

Time: 2 hour

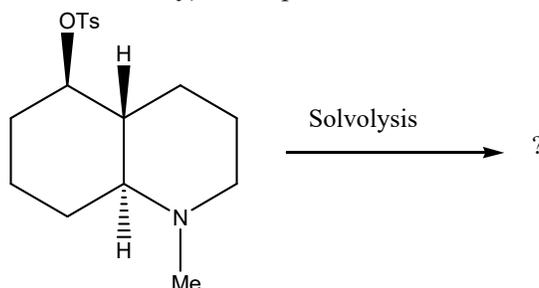
A. Answer **any four** from the following

4x2.5 = 10

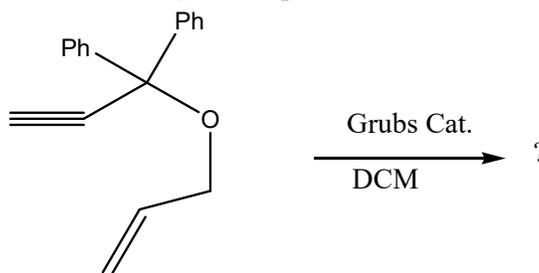
1. Give the mechanism for the following reaction and draw the structure (including stereochemistry) of the product with the orbital interaction



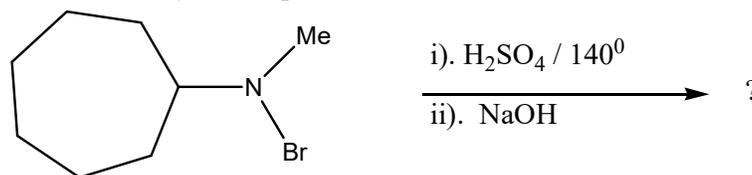
2. Give the mechanism for the following reactions and draw the structure (including stereochemistry) of the product



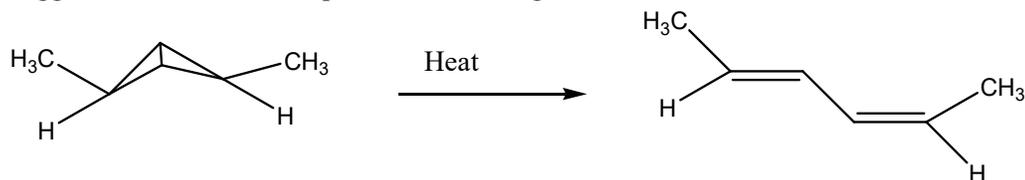
3. Give the mechanism for the following reactions and draw the structure (including stereochemistry) of the product



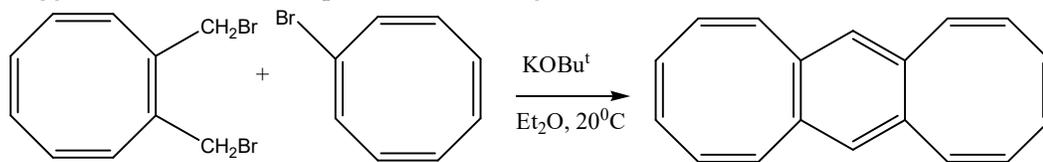
4. Give the mechanism for the following reactions and draw the structure (including stereochemistry) of the product



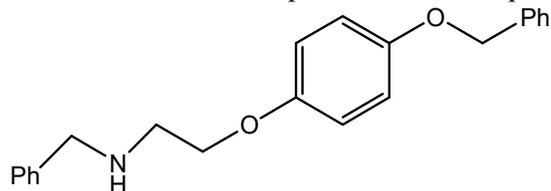
5. Suggest a mechanism to explain the following conversion



6. Suggest a mechanism to explain the following conversion



7. How would you design the synthesis of the following compound avoiding disconnection that causes chemo selective problems? Give explanations.



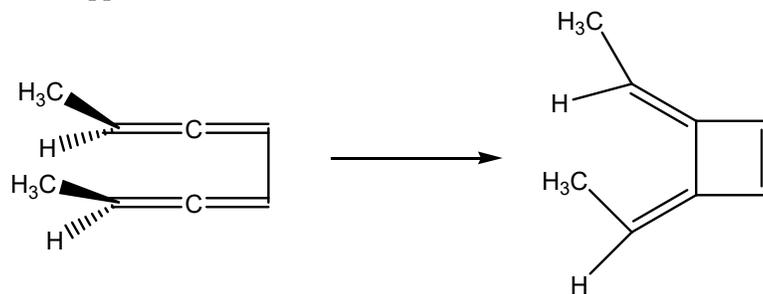
8. What is “biogenetic Isoprene rule”?

B. Answer **any four** from the following

4x5 = 20

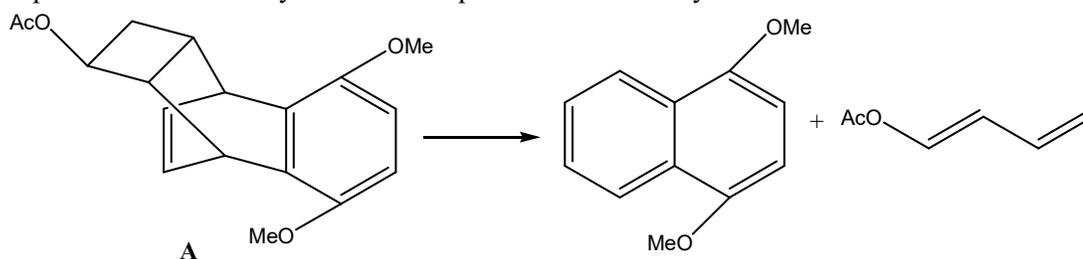
9. a) Draw the correlation diagram for cycloaddition reaction of butadiene and ethylene having supra-supra approach.

b). Have the following reaction proceeds with conrotatory or disrotatory manner? Show its FMO approach also.



3+2=5

10. a). On being heated to $320\text{-}340^\circ\text{C}$ the following compound (A) produces 1,4-dimethoxy-naphthalene and acetoxy-butadiene-Explain mechanistically



b). What product will be formed when cis-5,6-di-methyl-1,3-cyclohexadiene is heated and trans-5,6-di-methyl-1,3-cyclohexadiene is irradiated with light? Explain with FMO approach.

3+2=5

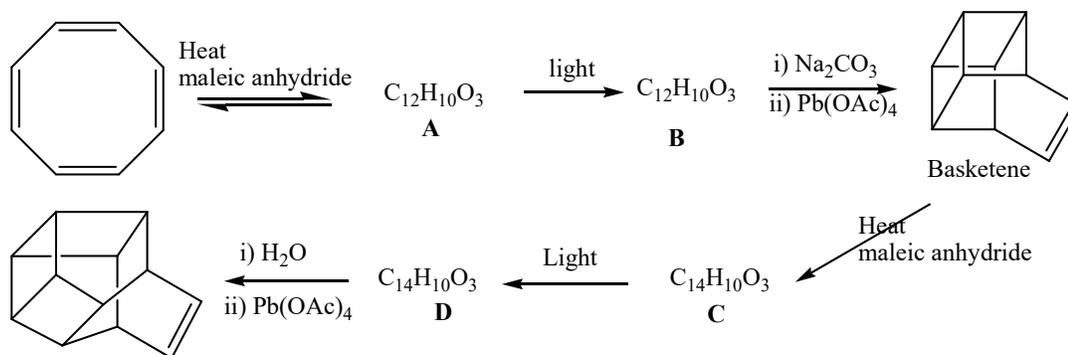
11. a). What is convergent and linear synthesis? Explain with appropriate example.

b). Define the terms disconnection.

4+1=5

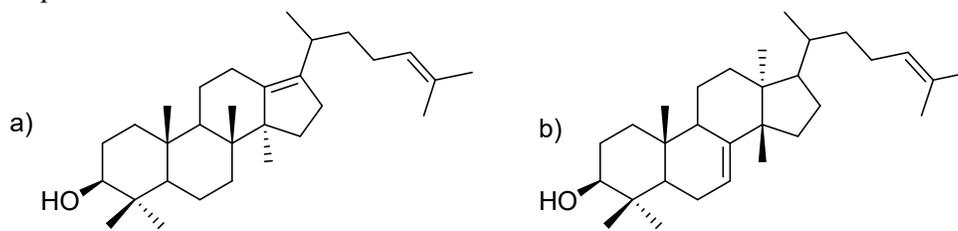
12. a). Mention the characteristics features of pericyclic reactions.

b) Draw the structures of A to D



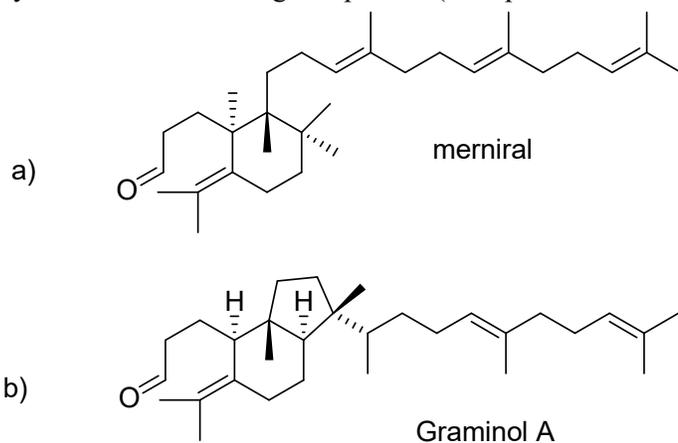
1+4=5

13. Synthesize the following 6-6-6-5 tetracyclic triterpenoids from squalene following biogenetic Isoprene rule.



2.5x2=5

14. Synthesize the following compounds (with plausible mechanism)

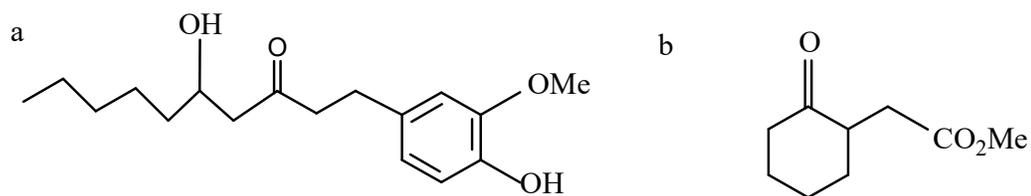


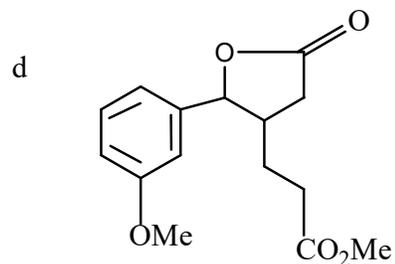
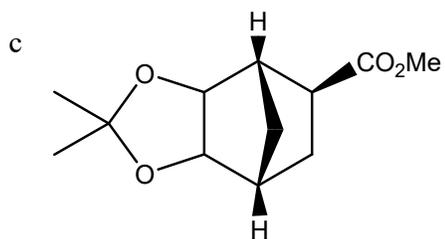
2.5x2=5

C. Answer **any one** from the following

1x10=10

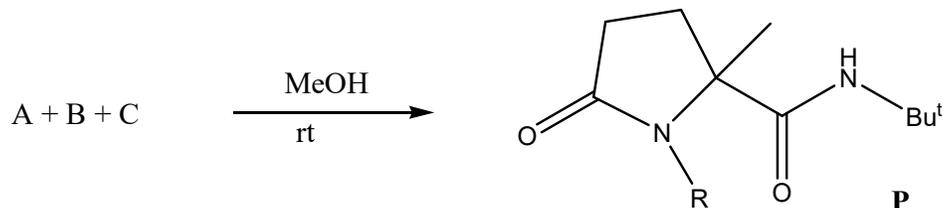
15. Give the retrosynthetic approach and their synthetic strategies of the following compounds





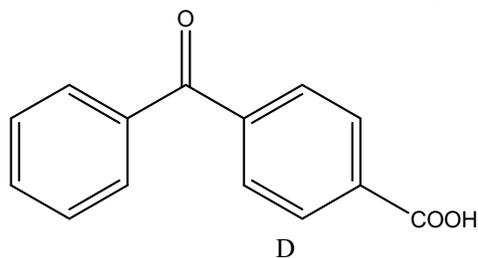
3+2+2+3=10

16. (a) Work backwards to find the components (A,B & C) of the Ugi reaction product, P



(b). Give the accepted mechanism of either Biginelli condensation or Passerini reaction.

(c). Using a benzophenone derivative (D) transform $\text{CH}_3(\text{CH}_2)_{14}\text{CH}_2\text{OH}$ into $\text{CH}_3\text{CH}_2\text{CO}(\text{CH}_2)_{12}\text{CH}_2\text{OH}$ following Breslow strategy.



(d). Complete the following transformation:

