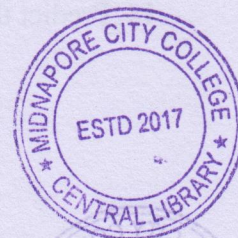
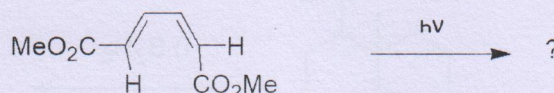


PG (NEW) CBCS
M.Sc. Semester-I Examination, 2018
CHEMISTRY
PAPER: CEM-102
(ORGANIC CHEMISTRY-I)

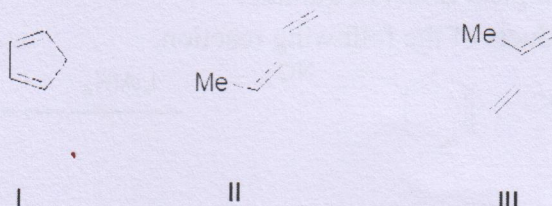
**Full Marks: 40****Time: 2 Hours****Group- A****Answer any four questions:****2×4**

1. Predict the product of the following reaction with the help of F.M.O approach.

2. How will you protect $-\text{NH}_2$?

3. What is biogenetic isoprene rule?

4. Arrange the following compounds in order of reactivity in Diels-Alder reactions giving reasons.



5. What are the advantages of multicomponent reaction?

6. What is (i,j) sigmatropic reaction? Explain with example.

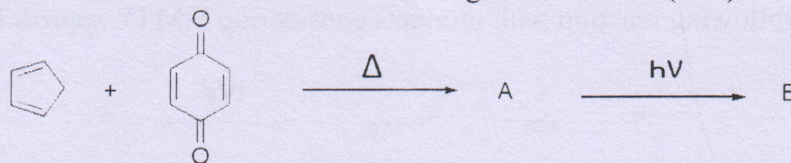
7. What are synthones? Explain with example.

8. What are alkaloids?

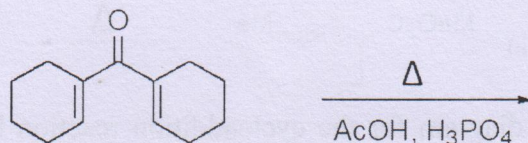
Group- B**Answer any four questions:****2×4**

9. (a) State Woodward-Hoffmann rules for electrocyclic ring closing reaction.

(b) Write the structure of A and B of the following reaction. (2+2)



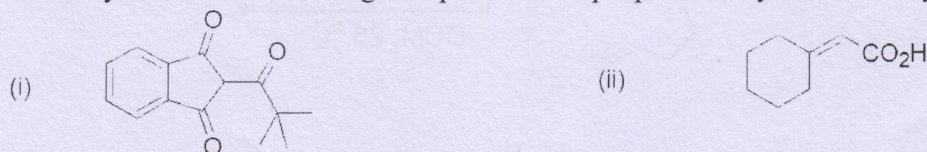
10. Explain the product and mechanism of the following reaction with F.M.O. interactions.



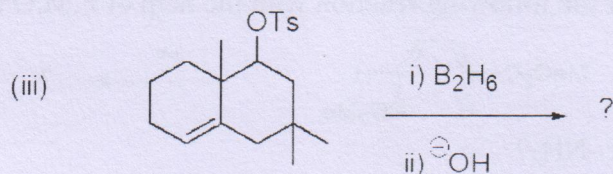
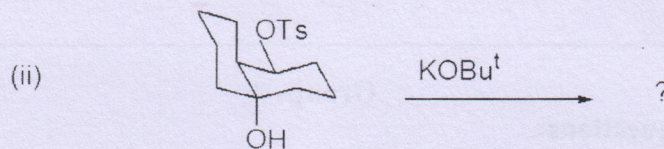
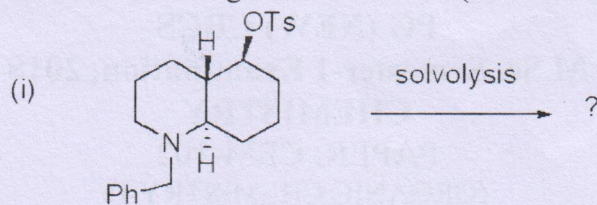
11. Describe Ugi reaction and its mechanism.

12. What is Phase transfer catalyst? Give also examples. How does it work?

13. Describe the synthesis of following compound with proper retrosynthetic analysis.

*(Turn Over)*

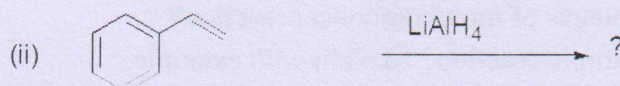
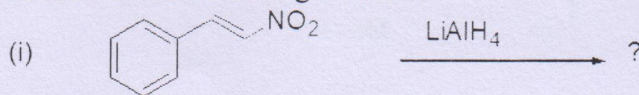
14. Predict the products in the following transformations (answer any two).



15. a) Is quinine a true alkaloid? Explain with structure.

(b) Write the physiological effect of quinine. (2+2)

16. (a) What are the products of the following reaction.



(b) Describe the biosynthesis of nicotine. (2+2)

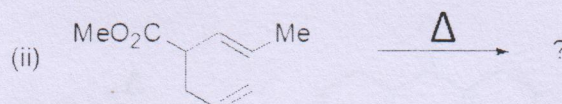
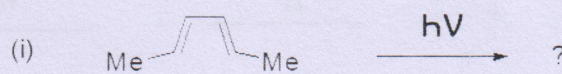
Group- C

Answer any two questions:

8×2

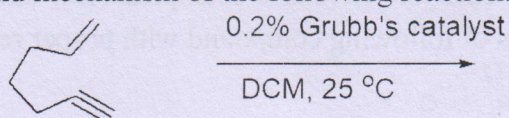
17. (a) Write the selection rules for cycloaddition reaction under thermal condition.

(b) Predict the following reaction with products considering F.M.O. approach.



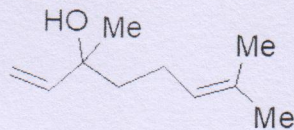
(c) Draw the correlation diagram for the cycloaddition reaction between 1,3-butadiene and ethylene under thermal condition. (2+3+3)

18. (a) Write the product and mechanism of the following reaction.



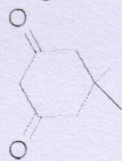
(Turn Over)

(b) Synthesize the following compound.

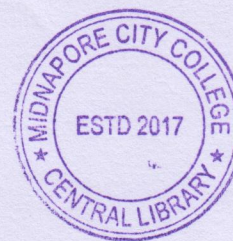


(Linalool)

(c) Synthesize dimedone considering retrosynthetic analysis.

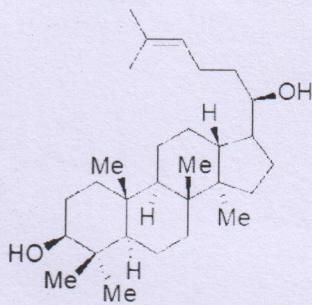


(dimedone)

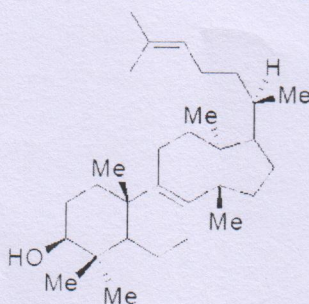


(3+2+3)

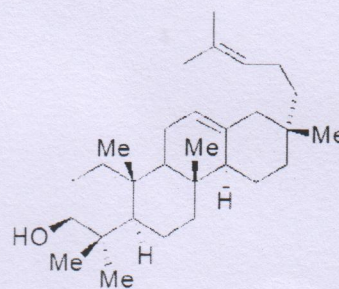
19. Synthesize (20s) dammarene-diol (1), butyro-spermeol (2), bachcharis oxide (3), lupeol (4), germanical (5) and α -amyrin (6) from squalene epoxide (answer any four).



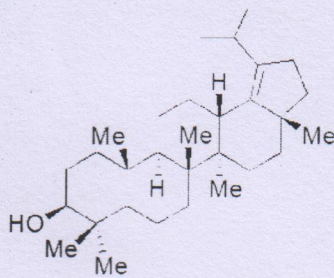
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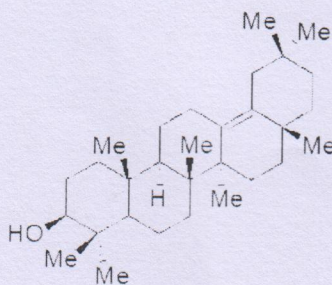
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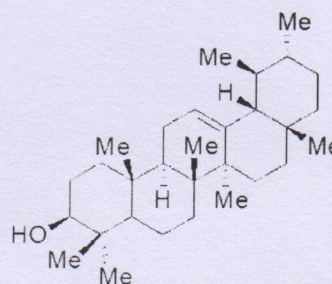
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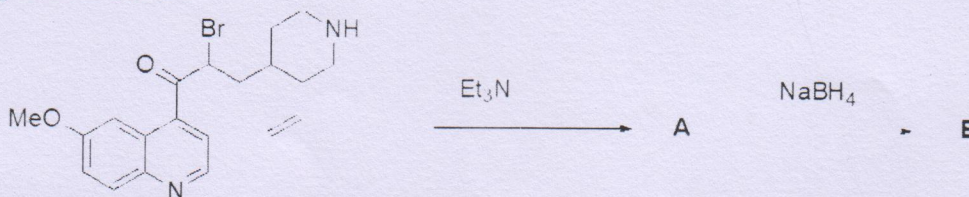


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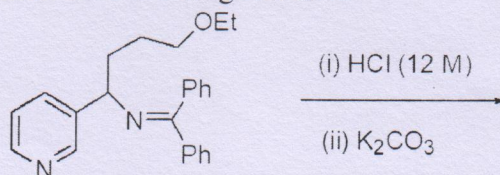


6

20. (a) Mention the structure of **A** and **B** of the following reaction. How many stereoisomers are possible for **B**?



(b) Describe the mechanism of the following reaction.



(c) Depict the mechanism for the conversion of RNHFmoc to RNH₂ by base.

(3+3+2)
