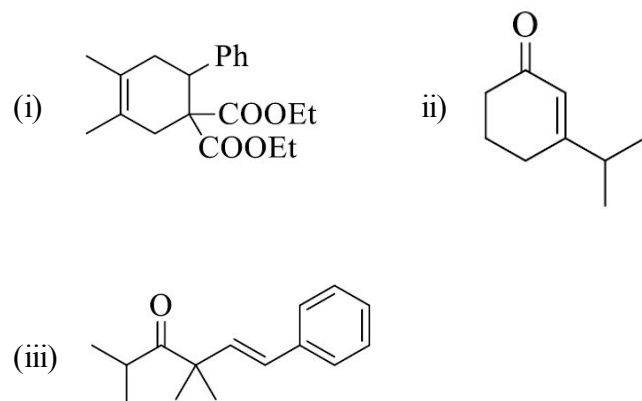


- (b) Discuss the use of *Carbamates* as protecting group for amino functionality by taking suitable example (at-least *two*). 6

6. Giving retro-synthetic approach, sketch the synthesis of following target molecules : 12



#### Section D

7. (a) Write down the stereochemical structure of Cortesone. 2
- (b) What do you understand by the diamagnetic susceptibility exaltation ? How this data is useful to explain the aromatic character of following molecules ? Explain your answer with justification : 4

Roll No. ....

Total Pages : 05

LMDQ/M-24

7524

### ORGANIC CHEMISTRY SPECIAL-III CHEM-401 (OBES/LOCF)

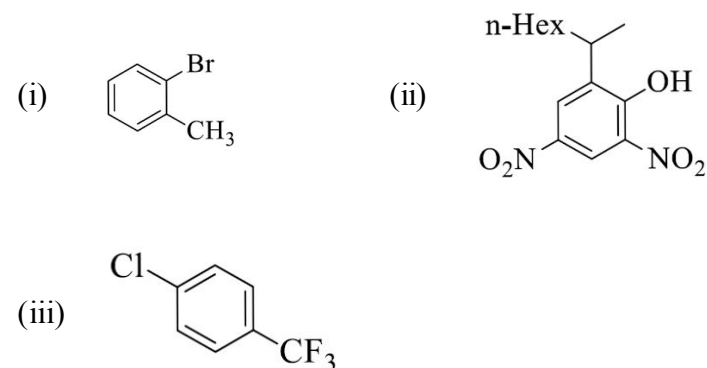
Time : Three Hours]

[Maximum Marks : 60

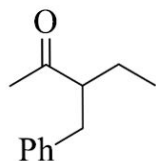
**Note :** Attempt *Five* questions in all, selecting at least *one* question from each Section. All questions carry equal marks.

#### Section A

1. Using appropriate guideline for the retro-synthesis write the justified retro-synthetic route and direct synthesis for given target molecules : 12

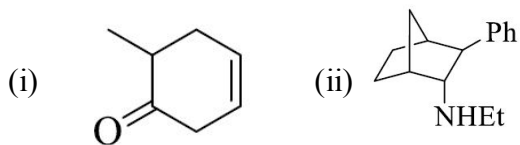


2. (a) Elaborate the term “two group C-X disconnection” in reference to disconnection approach. Plan the retro-synthetic steps and different reactions involved in direct synthesis by taking the example of Salbutamol. **6**
- (b) Discuss the retro-synthetic steps and direct synthesis of given target molecule using malonate ester as starting material. How malonate group has advantage to control the regioselectivity of alkylation of ketones ? **6**



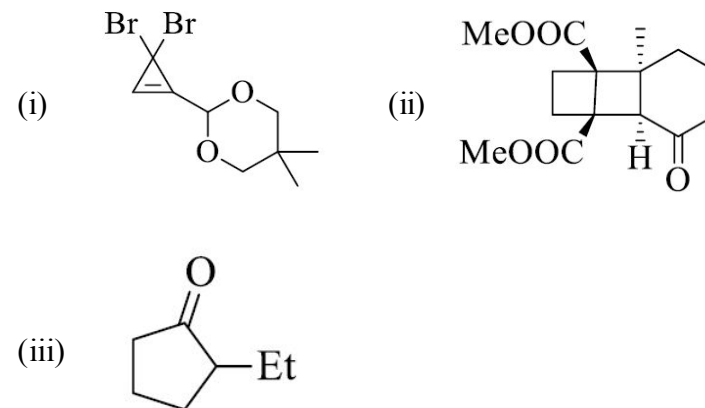
### Section B

3. (a) Discuss the importance of aliphatic nitro compounds for the synthesis of given target molecule and their retro-synthetic pathway : **6**



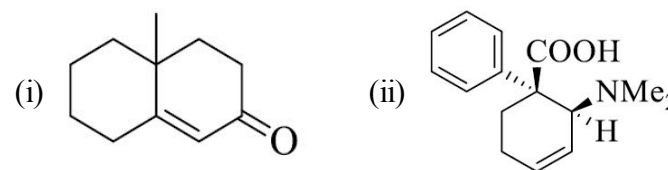
- (b) What is reversal of Polarity ? How the  $\alpha$ -alkoxynitriles and  $\alpha$ -lithovinyl ethers can behave as an acyl anion equivalent. Discuss with suitable example. **6**

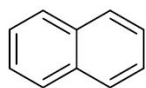
4. Explain the retro-synthetic analysis and synthetic route of the following target molecules : **12**



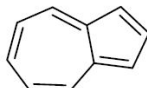
### Section C

5. (a) Give retro-synthetic analysis of the following compounds, also design a synthetic route for given target molecule with suitable reagents for each step : **6**

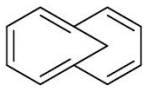




$$\Lambda = 30.5$$

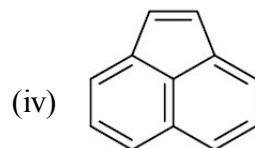
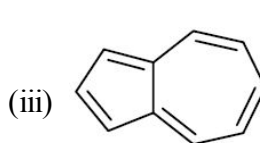
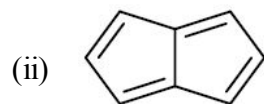
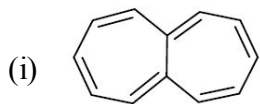


$$\Lambda = 29.6$$

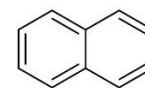


$$\Lambda = 36.8$$

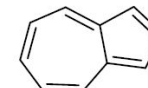
- (c) Explain Craig's rule for aromaticity. Using the same explain the nature of given molecules. 6



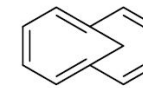
8. (a) Give the stereochemical structure of *epi-juvabione*. Starting from enantiomerically pure limonene, write stepwise the stereospecific synthesis of this molecule. 8
- (b) Find out the atom economy for Hoffmann elimination reaction of quaternary ammonium salts by taking suitable example and comment on the results. 4



$$\Lambda = 30.5$$

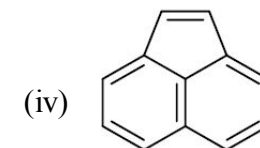
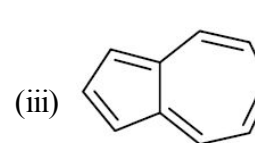
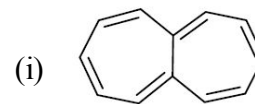


$$\Lambda = 29.6$$



$$\Lambda = 36.8$$

- (c) Explain Craig's rule for aromaticity. Using the same explain the nature of given molecules. 6



8. (a) Give the stereochemical structure of *epi-juvabione*. Starting from enantiomerically pure limonene, write stepwise the stereospecific synthesis of this molecule. 8
- (b) Find out the atom economy for Hoffmann elimination reaction of quaternary ammonium salts by taking suitable example and comment on the results. 4