

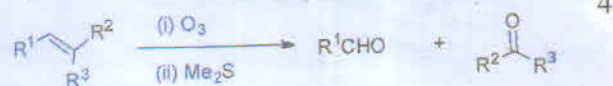
2021

Time :As in Programme

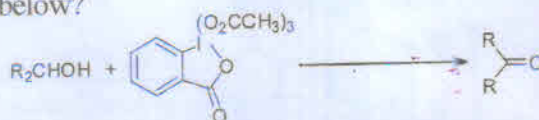
Full Marks : 50

*The figures in the right-hand margin indicate marks.**Answer all questions.*

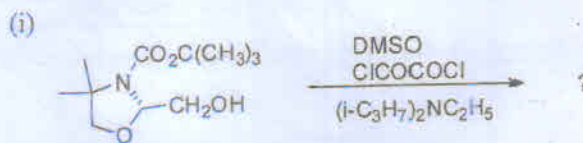
1. (a) Outline the mechanism of Birch reduction with a suitable example each for benzene ring carrying an electron donating and electron withdrawing substituent. 4
- (b) Outline the mechanism for the reaction shown below clearly indicating the steps and intermediates involved. What would be the products obtained if H_2O_2 is used for the work-up instead of Me_2S ? 4



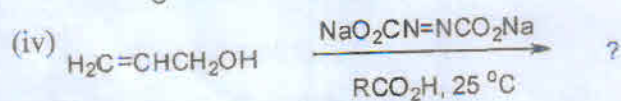
- (c) Outline the mechanism for the reaction shown below? 4



- (d) Predict the product of the following reactions: 5



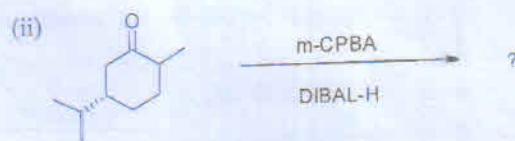
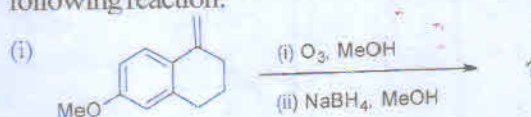
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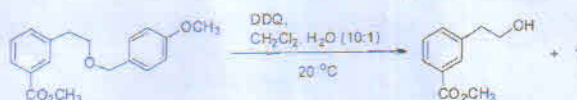
(e) Discuss synthetic application of the following reagents with suitable examples and mechanism. 4x3

- i) DIBAL-H
- ii) SeO_2
- iii) Desmartin Reagent
- iv) Sodium in liq. NH_3

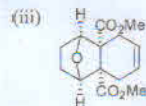
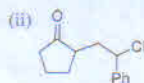
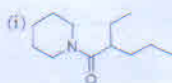
(f) Predict the product and suggest mechanism for the following reaction: 2x2.5



2. (a) Provide a mechanism for removal of the *p*-methoxybenzyl protecting group from an alcohol using DDQ. Also write all other products. 5



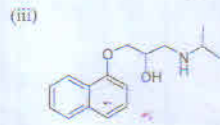
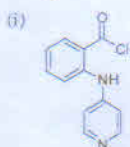
- (b) Write the disconnection approach and synthesis of the following molecules 4x3



- (c) For the following reaction sequence for Fmoc & Bz protection-deprotection, provide the information sought. 5



- (d) Write the disconnection approach and synthesis of the given molecules: 4x3

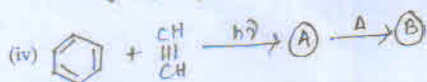
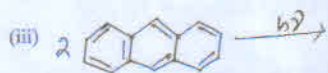
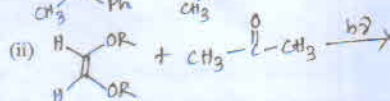
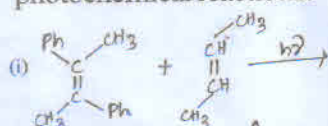


- 3) (a) Discuss the synthesis of Longifoline by any one method. 10

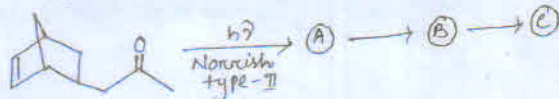
- (b) Write the synthesis of the following molecules. 3x2

OR

- (a) Write down the major product of the following photochemical reactions: 8



- (b) Complete the following reaction. 5



- (c) Discuss the photochemical formation of smog. 4