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ICH 452

II Semester M.Sc. Degree Examination, May/June 2019

INDUSTRIAL CHEMISTRY

Organic Chemistry - II

Time : 3 Hours]

[Max. Marks : 70

Instructions :

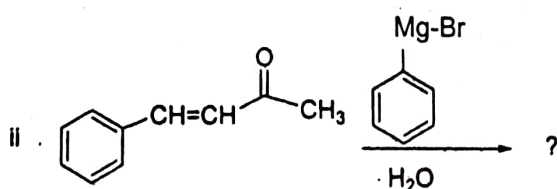
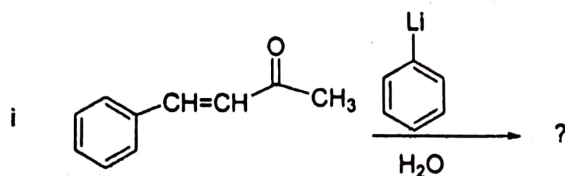
1. Answer any five questions from Part A and any five questions from Part B.
2. Figures to the right indicate marks.

PART - A

1. Answer **any five** sub divisions.

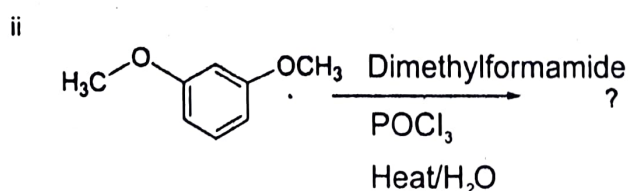
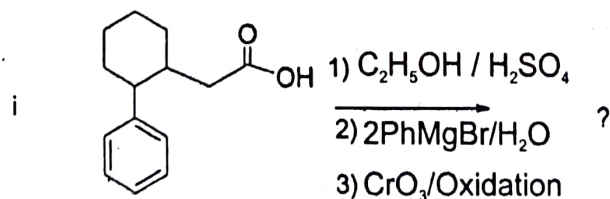
(5 × 2 = 10)

- (a) Predict the products in the following reactions :



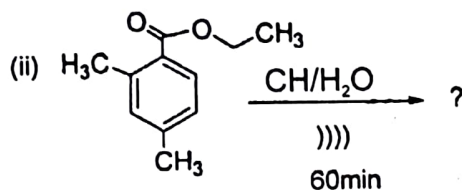
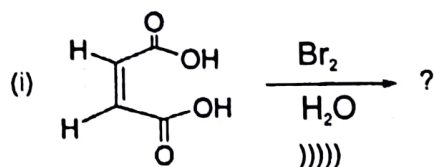
- (b) What is Claisen-Schmidt condensation reaction? Explain with example.

- (c) Predict the products and write the name in the following reactions :





- (d) How do you classify the pigments? Give one example.
- (e) What are the advantage and disadvantage of sonochemical reactions?
- (f) How do you prepare Wilkinson catalyst? Draw its structure and highlight its utility.
- (g) Write the structure of following compounds :
- (i) Testosterone
 - (ii) Querectin
 - (iii) Ephedrine
 - (iv) Progesterone
- (h) Predict the products in the following reactions :

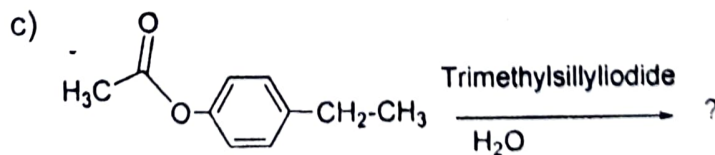
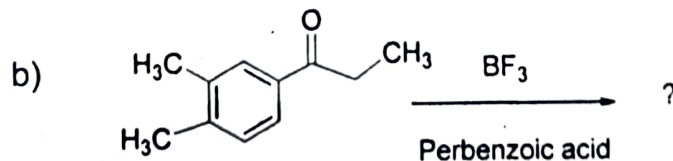
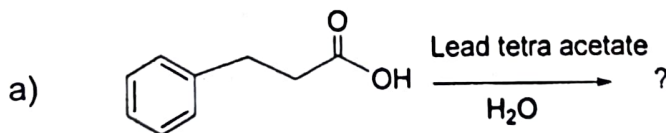


PART - B

Answer **any five** of the following :

(5 × 12 = 60)

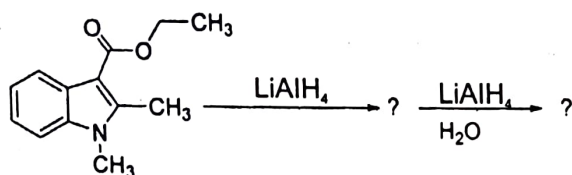
2. Complete the following reaction and outline its mechanism.



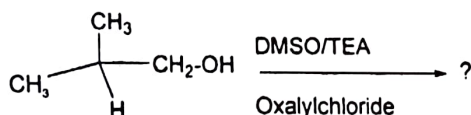
(4 + 4 + 4)

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3. (a) How do you prepare selenium dioxide? What are the applications of SeO_2 in the synthesis of organic compounds?
- (b) Discuss the mechanism and applications of the following reagents :
- (i) Tributyl tin hydride
 - (ii) Osmium tetroxide.
- (c) Write the product and explain with the mechanism in the following reaction.

**(4 + 4 + 4)**

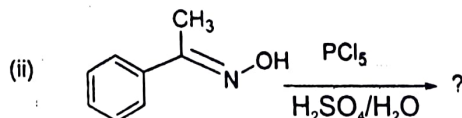
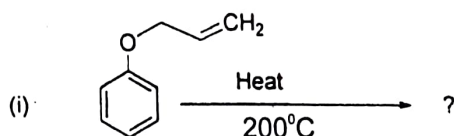
4. (a) Explain about the following reaction with the mechanism.



- (b) How would you generate a new carbon-carbon single bond in organic synthesis? Explain with help of Suzuki coupling reaction.
- (c) Explain the method to construct a peptide bond by using Ugi reaction.

(4 + 4 + 4)

5. (a) Write the product and discuss the mechanism in the following reactions :



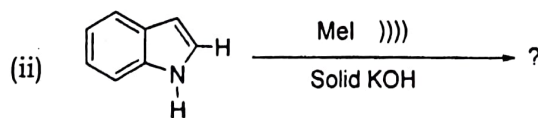
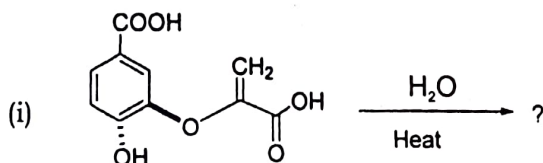
- (b) How do you differentiate Woodward-Prevost hydroxylation reaction? Explain with examples.

(6 + 6)

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6. (a) Discuss synthetic method involved in the preparation of androsterone.
 (b) Outline the structure elucidation of β -Carotene.
 (c) Illustrate the steps involved in the synthesis of Atropine. **(4 + 4 + 4)**
7. (a) Discuss about two methods pertaining analysis of oil and fats.
 (b) How do you synthesize mono and di glycerides? Discuss with example.
 (c) Discuss super critical fluid extraction method of extracting chemical constituent from plant. **(4 + 4 + 4)**
8. (a) What are the basic criteria required for planning a green synthesis in a laboratory? Discuss with examples.
 (b) Discuss principle involved in microwave induced organic synthesis with examples.
 (c) Write a short note on sonochemical oxidation and reduction reaction. **(4 + 4 + 4)**
9. (a) How do you synthesize following compound by using Green synthesis technique?
 (i) Enamino-ketone
 (ii) Orthoester Claisen arrangement
 (b) Which product would you expect in the following reactions?



Toluene
 PEG methyl ether
 30 min

- (c) How do you prepare organic compounds by using following compounds? Give one example each.
 (i) Scavenger resin
 (ii) Bio-catalyst **(4 + 4 + 4)**