

This question paper contains 4 printed pages]

L—115—2019

FACULTY OF SCIENCE

M.Sc. (Second Year) (Fourth Semester) EXAMINATION

MARCH/APRIL, 2019

(CBCS Pattern)

ORGANIC CHEMISTRY

Paper (CH-542/2)

(Bio-organic and Green Chemistry)

(Thursday, 25-4-2019)

Time : 2.00 p.m. to 5.00 p.m.

Time—3 Hours

Maximum Marks—75

N.B. :— (i) All questions are compulsory.

(ii) Figures to the right indicate full marks.

(iii) Multiple Choice Questions (MCQs) should be attempted only once on Page No. 3 of answer-book with complete answer.

1. Solve any *three* : 15
 - (a) Atom economy of addition reaction is 100%. Explain.
 - (b) Give structure, properties and functions of *m*-RNA and *t*-RNA.
 - (c) Enzyme possess reaction specificity.
 - (d) Application of PTC in darzen reaction.
 - (e) Use of per acid as green reagent.

2. Answer the following (any *three*) : 15
 - (i) Explain Purine bases in DNA.
 - (ii) Explain the following microwave reaction in organic solvent :
 - (a) Esterification reaction
 - (b) Fries rearrangement.
 - (iii) Explain Microwave assisted reaction in Water-Hoffman elimination reaction.
 - (iv) Explain Ultrasound assisted reduction reaction.
 - (v) Give application of enzymes in food and drug chemistry.

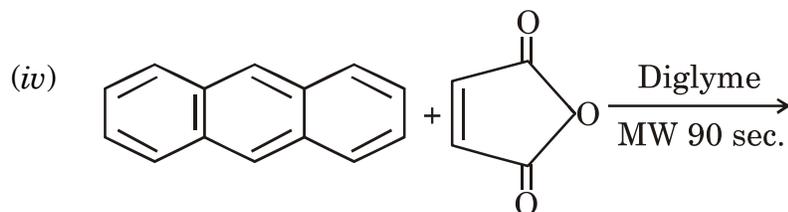
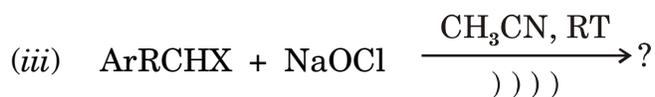
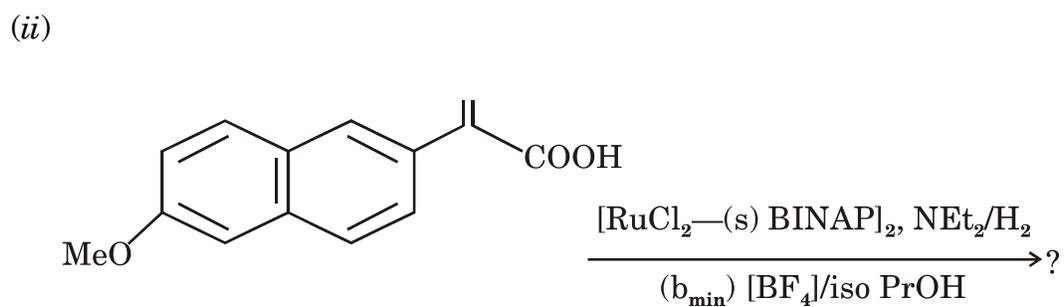
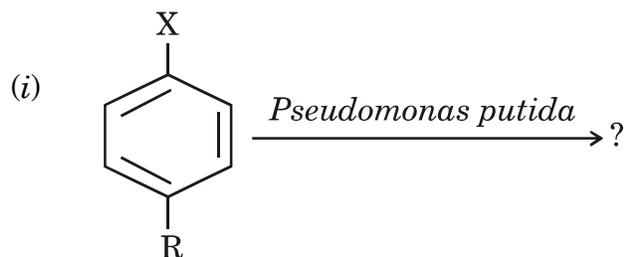
P.T.O.

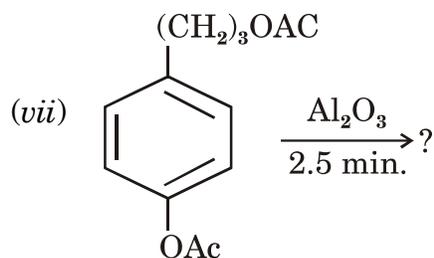
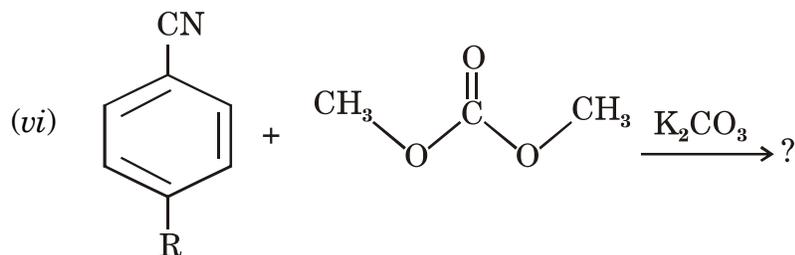
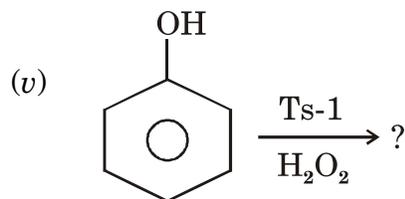
3. (a) What is Green chemistry ? Give need for green chemistry. Explain twelve principles of green chemistry. 7

Or

Explain double helix structure of DNA.

- (b) Predict the products (any four) : 8





4. (a) Explain Fischer's key and Lock hypothesis for mechanism of enzyme action. 7

Or

What are phase transfer catalyst ? Explain role of Aliquat 336 and tetra-*n*-butyl ammonium chloride in green chemistry.

- (b) Explain with example of biochemical oxidation and reduction reaction. 8

Or

Explain role of ionic liquids :

- (i) Hydrogenation reaction
(ii) Diels-Alder reaction.

5. (A) Select the *correct* alternative for the following multiple choice questions : 5

- (i) Guanine is a base.
(a) Purine (b) Pyrimidine
(c) Both (a) and (b) (d) None of these
- (ii) Alcohol dehydrogenase belongs to class of enzymes.
(a) Lysase (b) Transferase
(c) Hydrolase (d) Oxireductase
- (iii) B.M. Trost developed the concept of
(a) Atom economy (b) Green chemistry
(c) Sonochemistry (d) All of these
- (iv) Microwave ranges from
(a) 1 cm to 1 mm (b) 1 cm to 1 m
(c) 1 m to 10 m (d) 10 m to 100 m
- (v) Which of the following is an oxidation catalyst ?
(a) $\text{MgSc}(\text{OTf})_3$ (b) Diglyme
(c) Ts-1 (d) Quinoline

(B) Write short notes on (any *two*) : 10

- (a) Michael-Menten equation
(b) Applications of Ultrasound assisted reactions
(c) Classification and nomenclature of enzymes.