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AI—115—2017

FACULTY OF SCIENCE

M.Sc. (Fourth Semester) EXAMINATION

OCTOBER/NOVEMBER, 2017

(CBCS Pattern)

ORGANIC CHEMISTRY

(CH-542/2)

(Bio-organic and Green Chemistry)

(Tuesday, 14-11-2017)

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

Time— Three Hours

Maximum Marks—75

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

(ii) Figures to the right indicate full marks.

(iii) Multiple choice questions (MCQ) should be attempted only once on page no. 3 of answer-book with complete answers.

1. Solve any *three* : 15

(a) Role of PTC in Wittig's reaction.

(b) Explain the structure of RNA.

(c) Enzymes possess reaction specificity.

(d) Atom economy of rearrangement reaction.

(e) Use of DMC as a green reagent.

2. Answer the following (any *three*) : 15

(i) Explain nitrogen bases of Nucleic acid.

(ii) Explain the following microwave solvent free reaction.

(a) Saponification of Ester;

(b) Alkylation of reactive methylene compounds.

(iii) Microwave assisted Diel's-Alder reaction in organic solvent.

(iv) Benefits of microwave in organic synthesis.

(v) Explain induced fit mechanism for enzyme action.

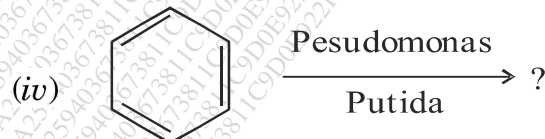
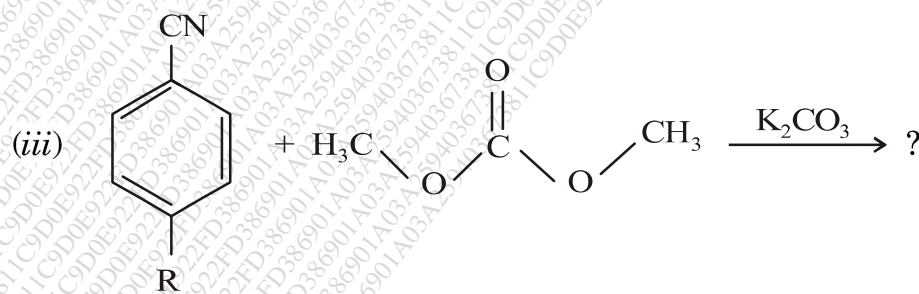
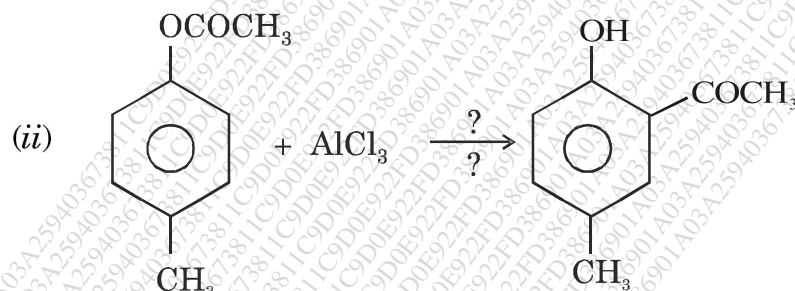
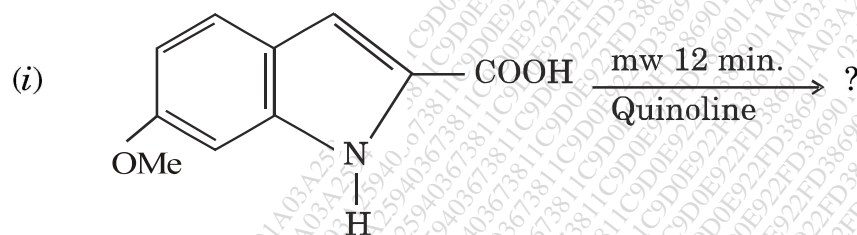
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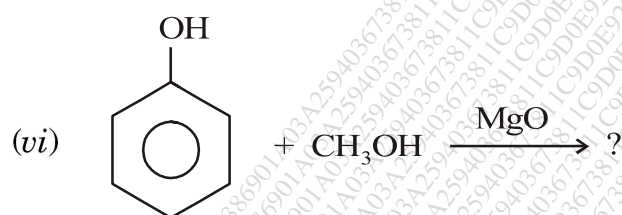
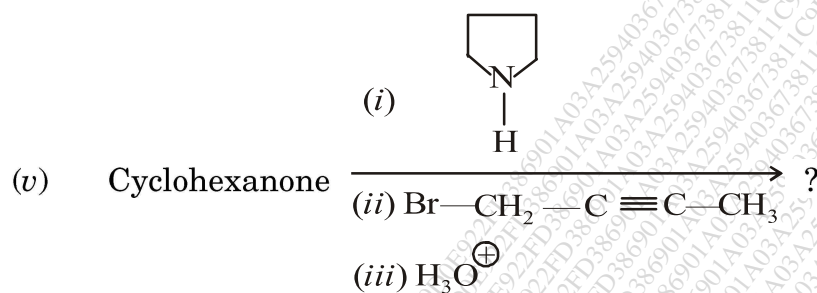
3. (A) What is green chemistry ? Why is the need of green chemistry ? Give the disadvantages of traditional method. 7

Or

Explain double helix structure of DNA.

- (B) Predict the product (any four) : 8





4. (A) Explain three-point attachment theory for mechanism of enzyme action. 7

Or

What is atom economy? Explain atom economy in elimination and substitution reaction.

- (B) Explain the applications of Ultrasound in chemical synthesis. 8

Or

Explain the role of ionic liquid in :

- (a) Reformatsky reaction;
 (b) Heck reaction;
 (c) Cannizaro's reaction;
 (d) Friedel-Crafts reaction.

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

(i)RNA carries genetic information of specific protein synthesis in the form of code :

- (a) *r*-RNA (b) *m*-RNA
 (c) *t*-RNA (d) None of these

P.T.O.

- (ii) The concept of Atom Economy was developed by :
- (a) Bary Trosf (b) Joseph D. Simon
(c) T. Remark (d) None of these
- (iii)used as PTC in Williamson's synthesis.
- (a) K.tert. butoxide
(b) tetrabutyl ammonium salt
(c) tributyl-methyl ammonium salt
(d) Both (a) and (c)
- (iv) Alcohol dehydrogenase belongs toclass of enzymes.
- (a) Hydrolase (b) Transferase
(c) Oxireductase (d) Lyase
- (v)is a green protocol for organic synthesis.
- (a) Ultrasound (b) Microwave induced reaction
(c) Ionic liquids (d) All of these
- (B) Write short notes on (any two) : 10
- (i) Classification and nomenclature of enzymes;
(ii) Factors affecting enzyme catalysed reactions;
(iii) Principles of green chemistry.