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AG—115—2018

FACULTY OF SCIENCE

M.Sc. (Fourth Semester) EXAMINATION

OCTOBER/NOVEMBER, 2018

(CBCS Pattern)

ORGANIC CHEMISTRY

(CH-542/2)

(Bio-Organic and Green Chemistry)

(Thursday, 29-11-2018)

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 answers-book with complete answers.

1. Solve any *three* : 15
 - (a) Explain the structure of RNA.
 - (b) Role of PTC in Darzen reaction.
 - (c) Rearrangement reaction is a 100% atom economical reaction. Explain.
 - (d) Use of DMC as a green reagent.
 - (e) Factors affecting enzymes catalysed reaction.
2. Answer the following (any *three*) : 15
 - (i) Explain induced fit mechanism for enzyme action.
 - (ii) Structure and physical properties of Nitrogen bases.
 - (iii) Microwave assisted Diels-Alder reaction in organic solvent.
 - (iv) Explain the following as green catalyst :
 - (a) Oxidation catalyst
 - (b) Polymer supported catalyst
 - (v) Significance of ion in Michaelis-Menton equation.

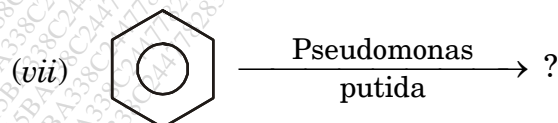
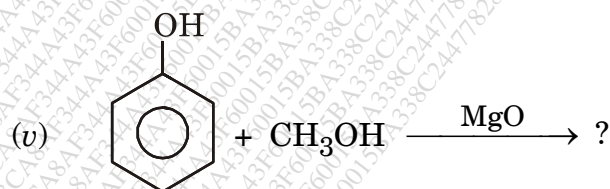
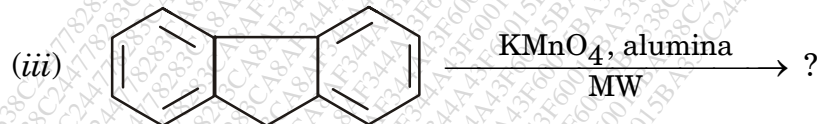
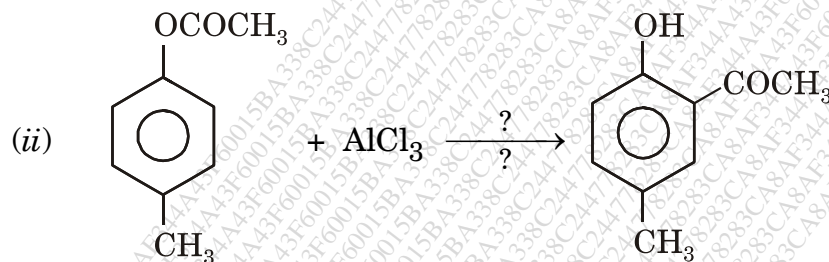
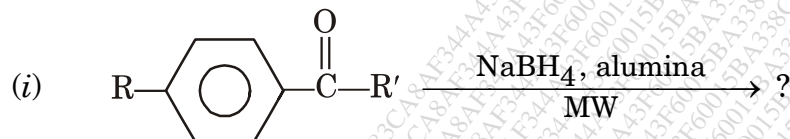
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3. (A) Explain double helix structure of DNA. 7

Or

Explain Fischer's Key and Lock mechanism for enzyme action.

(B) Predict the products (any four) : 8



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

Or

Explain the concept of Atom economy in detail with various reaction types.

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

Or

Explain the role of ionic liquid in the following reactions :

- (a) Hydrogenation
 - (b) Diels-Alder reaction
 - (c) O-alkylation
 - (d) N-alkylation
5. (A) Select the *correct* alternative from the following multiple choice questions : 5

- (i) Which of the following is purine base ?

- (a) Thymine
- (b) Uracil
- (c) Cytosine
- (d) Guanine

- (ii) is 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)

- (iii) Alcohol dehydrogenase belongs to class of enzymes.

- (a) Hydrolase
- (b) Oxireductose
- (c) Lyase
- (d) Transferase

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(iv) The term is used to describe effect of ultrasound waves in chemical reactivity.

- (a) Nanochemistry
- (b) Sonochemistry
- (c) Piezochemistry
- (d) None of the above

(v) is polymer supported chromic acid.

- (a) DMC
- (b) Pentasil zeolite
- (c) Vanadium silicate
- (d) Amberlyte-A-2b.

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

10

- (i) Reaction specificity in enzyme
- (ii) Principles of Green Chemistry
- (iii) Reactions in basic ionic liquid.