

This question paper contains 4 printed pages]

**AI—140—2017**

**FACULTY OF SCIENCE**

**M.Sc. (Fourth Semester) EXAMINATION**

**MARCH/APRIL, 2017**

**(CBCS Pattern)**

**ORGANIC CHEMISTRY**

**Paper CH-542/2**

**(Bio-organic and Green Chemistry)**

**(Monday, 24-4-2017)**

**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 (MCQs) should be attempted only once on page No. 3 of answer-book with complete answers.*

1. Solve any *three* : 15
- (a) Discuss the structure of uracil and thiamine.
  - (b) Give the types of RNA with their functions.
  - (c) Explain the role of PTC in Darzen reaction.
  - (d) Use of DMC as green reagent.
  - (e) What is atom economy ? Explain.
2. Answer the following (any *three*) : 15
- (a) Explain the hydrolysis of Nucleic acid.
  - (b) Microwave assisted Dieder Alder reaction.
  - (c) Reaction specificity in enzymes.
  - (d) Discuss the secondary structure of DNA.
  - (e) Explain biochemical reduction with *two* suitable examples.

P.T.O.

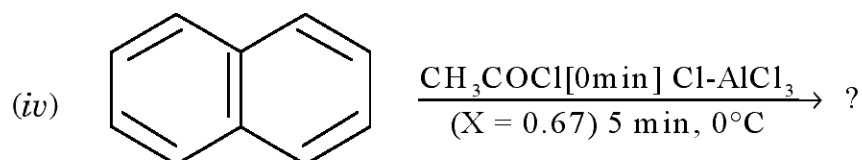
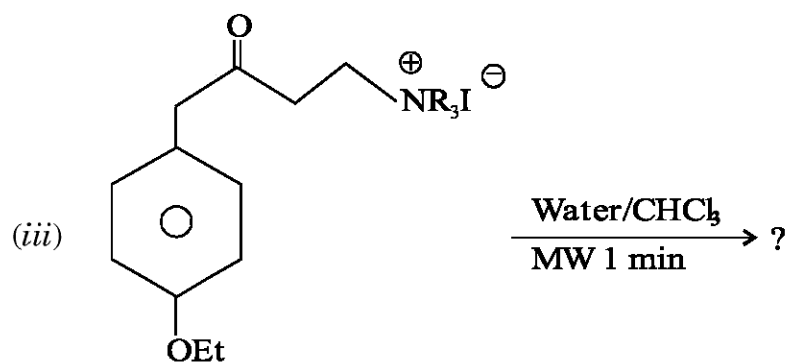
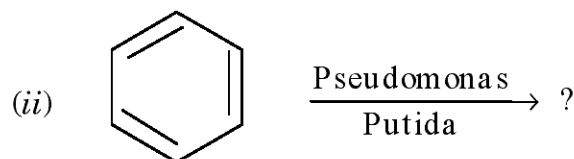
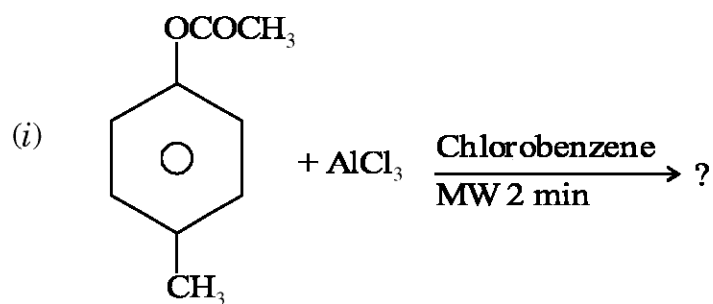
3. (A) Explain double Helix structure of DNA given by Watson and Crick. 7

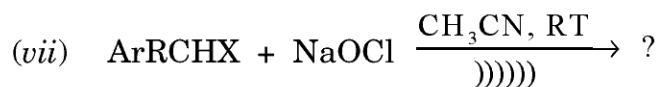
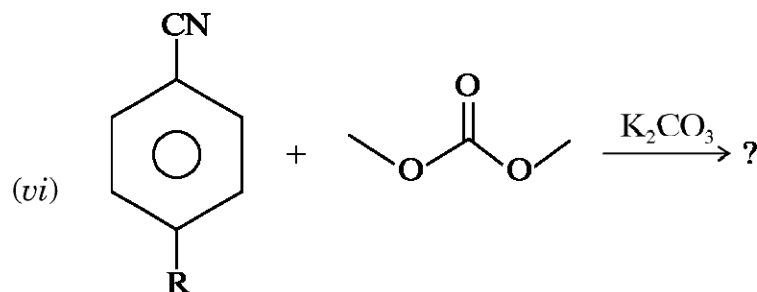
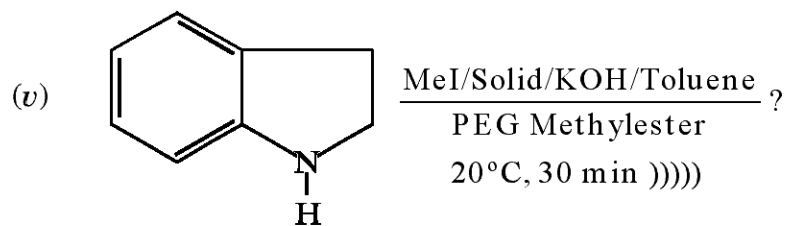
Or

Why is the need of green chemistry ? Explain in detail.

- (B) Predict the products (Any four) :

8





4. (A) Discuss the *twelve* principles of green chemistry in detail. 7

Or

Explain Lock and Key mechanism of enzymes.

- (B) Explain reactions in acidic ionic liquids and neutral ionic liquid. 8

Or

What is phase transfer catalyst ? Give the advantages of PTC to green synthesis.

5. (A) Select the *correct* answer from the following multiple choice questions. 5

(i) .....following base is not present in DNA.

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

P.T.O.

- (ii) .....is green protocol for organic synthesis.
- (a) Ultrasound
  - (b) Ionic liquid
  - (c) Microwave induced system
  - (d) All of the above
- (iii) The term.....is used to describe effect of ultrasound waves in chemical reactivity.
- (a) Nanochemistry
  - (b) Sonochemistry
  - (c) Piezochemistry
  - (d) Thermochemistry
- (iv) Microwaves ranges from.....in wavelength in electro-negative spectrum.
- (a) 1 m – 10 m
  - (b) 1 cm – 1 m
  - (c) 1  $\mu$ m – 1 m
  - (d) 1 nm – 1 cm
- (v) There are .....principles of green chemistry.
- (a) 10
  - (b) 12
  - (c) 14
  - (d) None of these
- (B) Write short notes on (any *two*) 10
- (i) Give the classification of enzyme.
  - (ii) Alkylation of reactive methylene compound under solvent free condition.
  - (iii) Three point attachment theory.