

This question paper contains 5 printed pages]

**AI—45—2017**

**FACULTY OF SCIENCE**

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

**OCTOBER/NOVEMBER, 2017**

**(CBCS Pattern)**

**ORGANIC CHEMISTRY**

**Paper CH-541/2**

**(Advanced Heterocyclic Chemistry)**

**(Saturday, 11-11-2017)**

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

**Time—3 Hours**

**Maximum Marks—75**

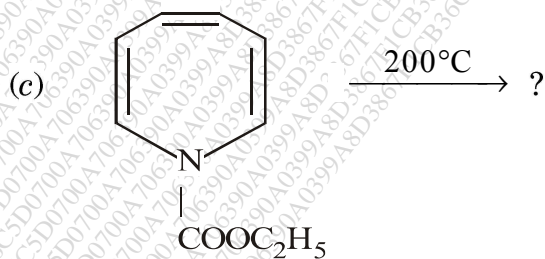
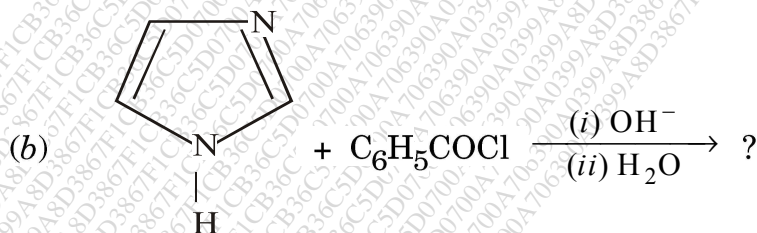
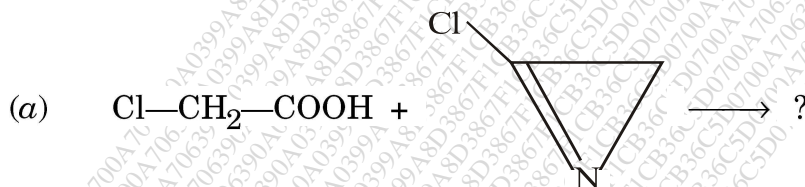
**N.B. :— (i) Attempt All questions.**

**(ii) Figures to the right indicate full marks.**

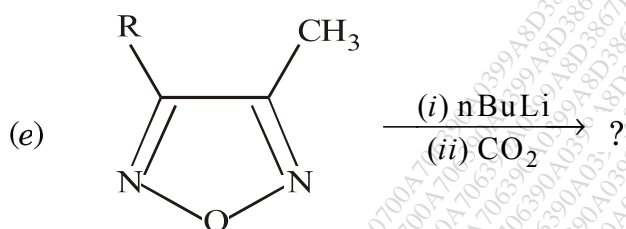
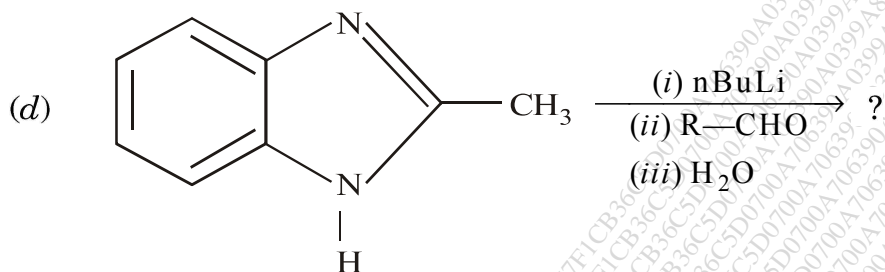
**(iii) Multiple to the right indicate full marks be attempted only once on page number three of answer-book with complete answer.**

1. Predict the product in any *three* of the following :

15

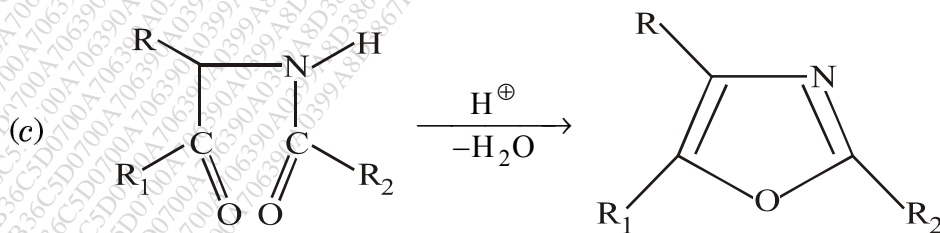
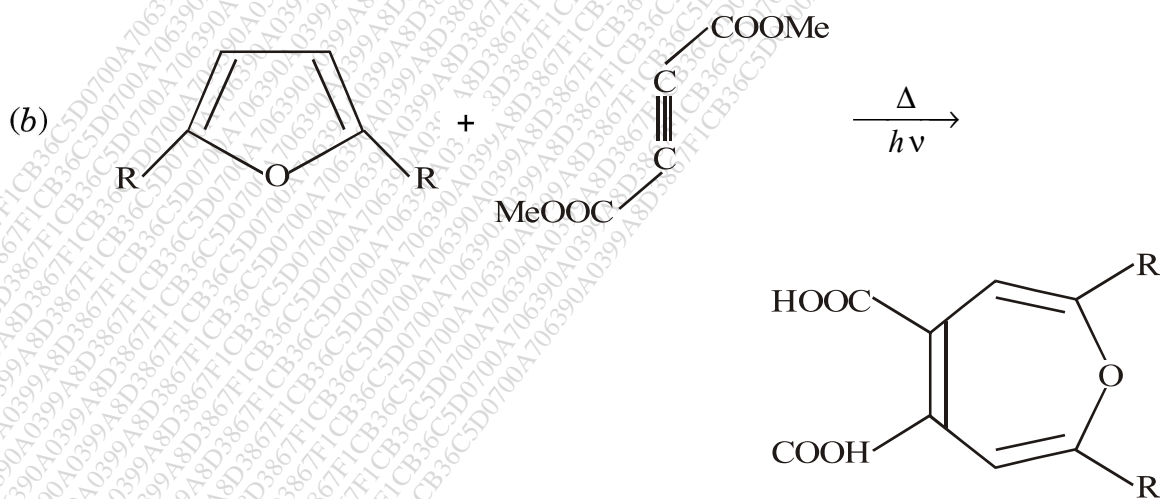
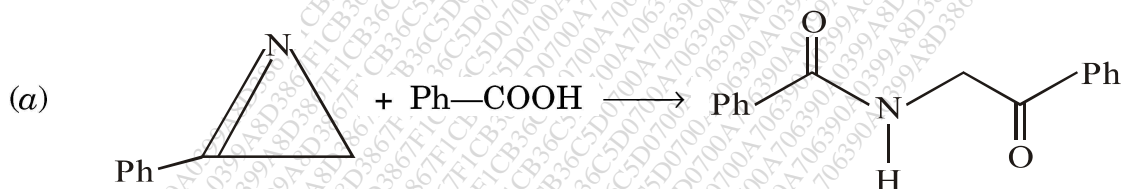


P.T.O.



2. Suggest the mechanism for any *three* of the following :

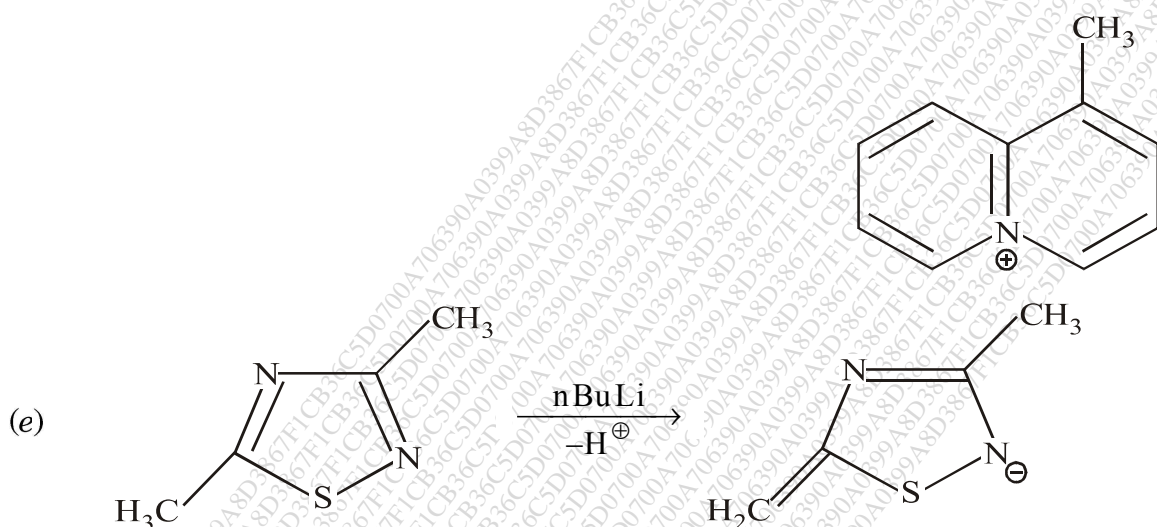
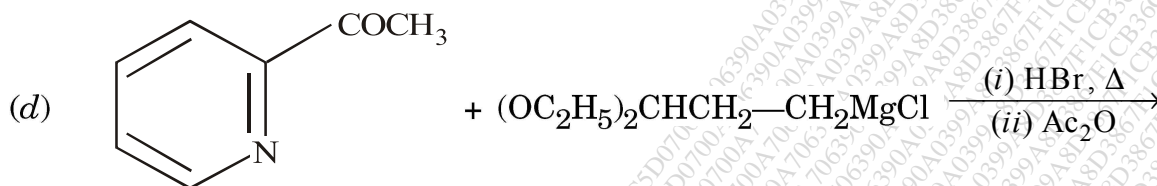
15



WT

( 3 )

AI-45-2017



3. (a) Explain synthesis of thiazoles : 8

(i) From *o*-halo carbonyl compound

(ii) From Gabriel synthesis.

Or

Explain synthesis of Indalazines from : 8

(i) 2-picoline

(ii) 2-pyridyl lithium.

(b) Explain synthesis of diazepines from : 7

(i) diazopenta 2, 4 diene

(ii) pyridine N-ylides.

Or

Explain synthesis of azetidines from : 7

(i)  $\alpha$ -halo alkyl amine

(ii) From isoxazole derivatives.

P.T.O.

4. (a) Explain why electrophilic attack takes place at 4 and 5-position in imidazole. 8

Or

Explain the chemical properties of oxepine : 8

- (i) Reaction with acid  
 (ii) Diels-Alder reaction.
- (b) Explain Hantzsch-Widman system of nomenclature with suitable example. 7

Or

Explain synthesis of Benzothiazole : 7

- (i) From *o*-amino thio-phenol  
 (ii) N-Arylthioamides.
5. (A) Select the *correct* alternative and rewrite the complete sentence : 5
- (i) The stem irine may be used ring containing any :
- (a) N  
 (b) S  
 (c) O  
 (d) Se
- (ii) Azocine is the aza analogue of :
- (a) Cyclooctatetraene  
 (b) Cycloheptatetraene  
 (c) Cyclohexatriene  
 (d) Cyclopentadiene
- (iii) Oxadiazoles contain :
- (a) Two nitrogen and one oxygen  
 (b) Three nitrogen  
 (c) One nitrogen and two oxygen  
 (d) None of the above

- (iv) Diaziridines is a ..... compound containing two nitrogen atoms in a three member ring.
- (a) Unsaturated
  - (b) Saturated
  - (c) Anionic
  - (d) Cationic
- (v) ..... prefix is used for phosphorus.
- (a) Phosphor
  - (b) Phospha
  - (c) Phospho
  - (d) Phosa
- (B) Write short notes on any *two* of the following :
- (i) Azonine
  - (ii) Pyrazine
  - (iii) Pyridine N-oxide.

10