

This question paper contains 5 printed pages]

**V—42—2017**

**FACULTY OF SCIENCE**

**B.Sc. (Second Year) (Third Semester) EXAMINATION**

**OCTOBER/NOVEMBER, 2017**

**(CBCS/CGPA Pattern)**

**CHEMISTRY**

**Paper VI**

**(Organic and Inorganic Chemistry)**

**(Thursday, 12-10-2017)**

**Time : 2.00 p.m. to 4.00 p.m.**

*Time—Two Hours*

*Maximum Marks—40*

*N.B. :— (i) Attempt all questions.*

*(ii) All questions carry equal marks.*

*(iii) Use separate answer sheet (OMR sheet) for MCQ No. 1.*

**MCQ**

**10**

1. Select the *correct* answer for each of the following multiple choice questions :

(i) The reaction in which ketone converts into secondary alcohol with aluminium isopropoxide in excess of isopropyl alcohol. The reaction is known as :

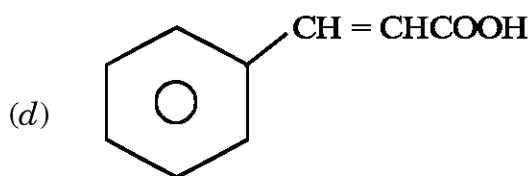
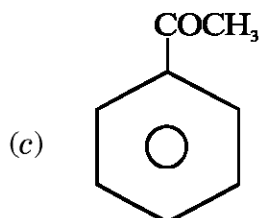
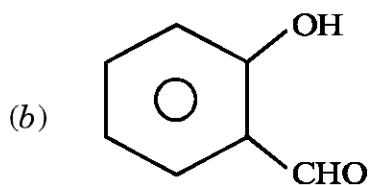
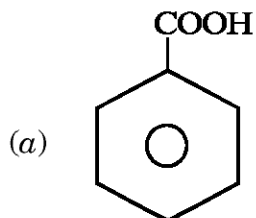
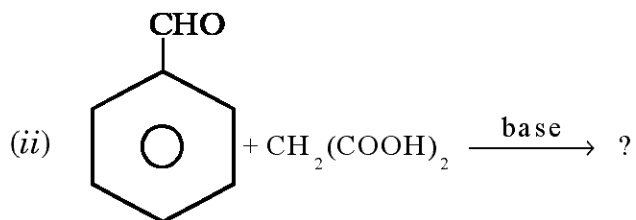
(a) M.P.V. reduction

(b) Clemmensen reduction

(c) Oppenauer oxidation

(d) Baeyer-Villiger oxidation

P.T.O.



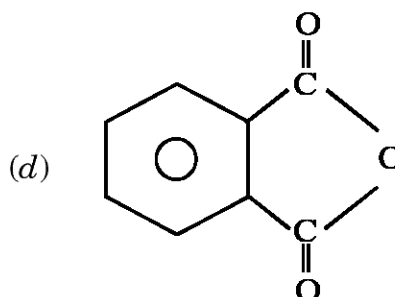
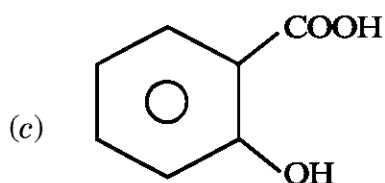
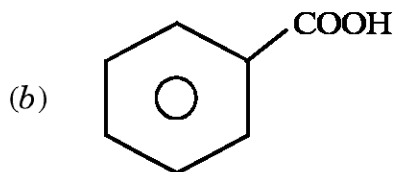
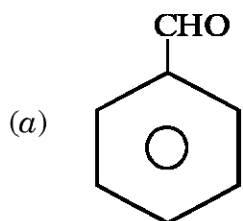
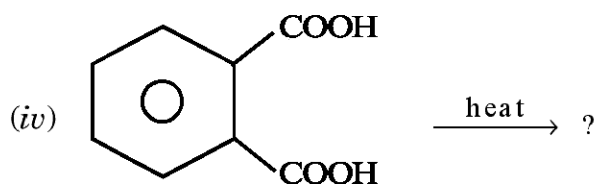
(iii) Oxidation of Toluene with  $\text{KMnO}_4$  gives :

(a) Benzene

(b) Benzoic acid

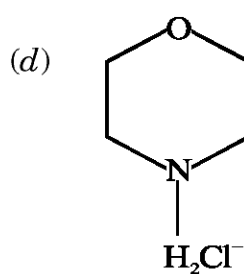
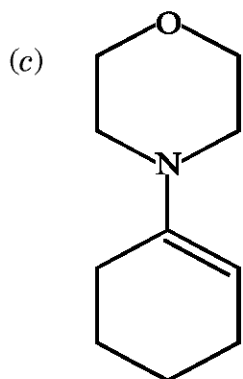
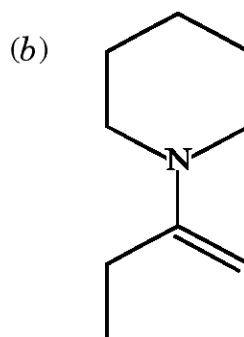
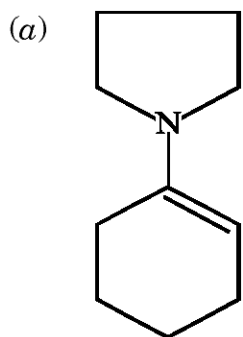
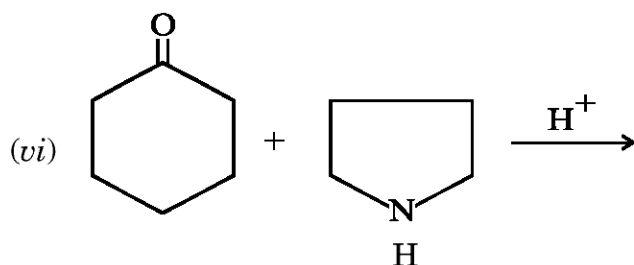
(c) Benzyl alcohol

(d) Phenol



(v) When methyl lithium reacts with formaldehyde it gives :

- (a) Methanol (b) Ethanol  
(c) Propanol (d) None of these



(vii) The degree of unsaturation of fats or oil is measured by its .....

- (a) Acid number (b) Iodine number  
(c) Saponification number (d) None of these

P.T.O.

(viii) Trouton's constant value of ammonia is :

- (a)  $108.8 \text{ JK}^{-1} \text{ mol}^{-1}$  (b)  $94.79 \text{ JK}^{-1} \text{ mole}^{-1}$   
(c)  $101.2 \text{ JK}^{-1} \text{ mole}^{-1}$  (d) None of these

(ix) Which of the following is *not* a II A group basic radical :

- (a)  $\text{Pb}^{++}$  (b)  $\text{Bi}^{3+}$   
(c)  $\text{As}^{3+}$  (d)  $\text{Cu}^{++}$

(x) For the qualitative analysis of cobalt, organic reagent used is .....

- (a)  $\alpha$ -Benzoinoxime (b) DMG  
(c)  $\alpha$ -nitroso  $\beta$ -naphthol (d) 1,10 Phenanthroline

### Theory

#### (Section A—Organic Chemistry)

2. Solve any *two* of the following : 10
- (a) Explain Mannich reaction with mechanism.  
(b) How will you synthesize anthranilic acid from :  
(i) Phthalimide  
(ii) O-nitro toluene ?  
(c) What are organo zinc compounds ? How will you obtain the following from diethyl zinc :  
(i) Ethanol  
(ii) 2-propanone.  
(d) Explain Reichert Meissl value and cleansing action of soaps.
3. Solve any *two* of the following : 10
- (a) Explain Oppenauer oxidation reaction with mechanism.  
(b) (i) How will you prepare benzoic acid by phenyl cyanide ?  
(ii) How will you synthesize soaps by hydrolyser process ?

- (c) How will you synthesize the following from ethyl acetoacetate ?
- (i) Acetone
  - (ii) Propanoic acid.
- (d) Explain the reduction of ketone to secondary alcohol by using  $\text{NaBH}_4$  with mechanism.

**(Section B—Inorganic Chemistry)**

4. Solve any *two* of the following : 10
- (a) Explain the role of complex formation in the separation of II A and II B Group radicals.
  - (b) Explain the use of  $\alpha$ -Benzoinoxime and 8-hydroxy Quinoline organic reagents in the Qualitative analysis.
  - (c)
    - (i) Explain the role of sodium carbonate extract in qualitative analysis.
    - (ii) Water is universal solvent. Explain.
  - (d) Explain the following reactions in liquid sulphur dioxide :
    - (i) Acid-Base
    - (ii) Solvation
    - (iii) Auto Ionisation.