

This question paper contains 5 printed pages]

**V—39—2017**

**FACULTY OF SCIENCE**

**B.Sc. (First Semester) EXAMINATION**

**OCTOBER/NOVEMBER, 2017**

**(CBCS/CGPA Pattern)**

**CHEMISTRY**

**Paper I**

**(Organic and Inorganic Chemistry)**

**(MCQ + Theory)**

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

**Time : 10.00 a.m. to 12.00 noon**

*Time—2 Hours*

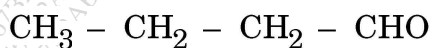
*Maximum Marks—40*

- N.B. :—*
- (i) Attempt *All* questions.
  - (ii) *All* questions carry equal marks.
  - (iii) Use OMR sheet for question No. 1.
  - (iv) Calculator is allowed.
  - (v) Only one answer sheet should be used for Sections A and B.

**MCQ**

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

(1) The IUPAC name of



is .....

(A) Butanol

(B) Butanone

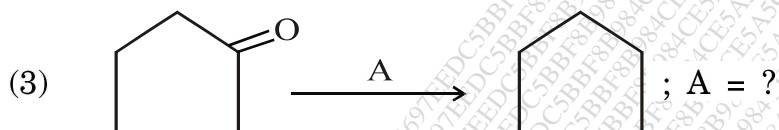
(C) Butanal

(D) Butane

P.T.O.

(2) Hyperconjugation effect is also known as .....

- (A) No bond resonance  
 (B) Baker-Nathan effect  
 (C) Both (A) and (B)  
 (D) Inductive effect



- (A)  $\text{LiAlH}_4$  (B)  $\text{NaBH}_4$   
 (C)  $\text{Zn-Hg/HCl}$  (D)  $\text{KMnO}_4$

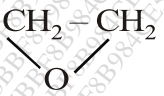
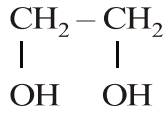
(4) 1, 3-Butadiene is ..... diene.

- (A) Isolated (B) Conjugated  
 (C) Cumulated (D) All of these

(5) ..... is used for test of unsaturation and known as ..... test.

- (A)  $\text{Br}_2/\text{H}_2\text{O}$ ; Baeyers  
 (B) alk.  $\text{KMnO}_4$ , Baeyers  
 (C)  $\text{H}_2\text{SO}_4$ , Baeyers  
 (D)  $\text{HBr}$ , Markovnikovs



- (A)  (B)   
 (C)  $\text{CH}_3\text{-CH}_2\text{-OH}$  (D)  $\text{CH}_3\text{-CHO}$

- (7) Free radical have ..... charge.
- (A) Negative (B) Positive  
(C) No (D) Both (A) and (B)
- (8) The electronic configuration of the most electronegative elements is .....
- (A)  $ns^2np^3$  (B)  $ns^2np^4$   
(C)  $ns^2np^5$  (D)  $ns^2np^6$
- (9) The most common oxidation state of *f*-block element is .....
- (A) +2 (B) +3  
(C) +1 (D) None of these
- (10)  $\beta$ -quinol forms a stable clathrate with .....
- (A) Kr (B) He  
(C) Ne (D) None of these

### Theory

#### Section A

#### (Organic Chemistry)

2. Answer any *two* of the following :
- (a) Give the differentiation between electrophiles and nucleophiles.
- (b) What are cycloalkanes ? Explain Baeyer's strain theory.
- (c) Predict the product of the following reactions :
- (i)  $2\text{CHI}_3 \xrightarrow{6\text{Ag}} ?$
- (ii)  $\text{Br}-\text{CH}_2-\text{CH}_2-\text{CH}_2-\text{CH}_2-\text{Br} \xrightarrow{\text{alc.KOH}} ?$
- (iii)  $\text{CH}_3-\text{CH}_2-\text{C}\equiv\text{C}-\text{H} \xrightarrow{\text{Pd/CaCO}_3} ?$
- (iv)  $\text{CH}_2=\text{CH}-\text{CH}=\text{CH}_2 + \text{CH}_2=\text{CH}_2 \xrightarrow{\Delta} ?$
- (v)  $\text{H}-\text{C}\equiv\text{C}=\text{H} \xrightarrow{2\text{HBr}} ?$
- (d) What are alcohols ? Give their classification with suitable example.

P.T.O.

3. Answer any *two* of the following :

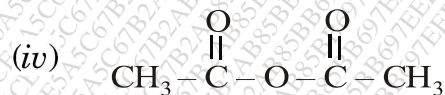
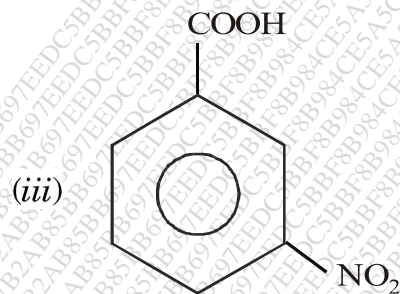
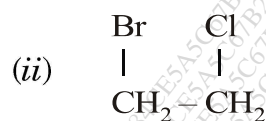
(a) Explain inductive and mesomeric effect with suitable example.

(b) Write notes on :

(i) Oxymercuration-Demercuration

(ii) Chlorohydrin formation.

(c) Write the correct IUPAC names of the following :



(d) (i) How will you prepare glycerol from propene ?

(ii) Write the correct structure of the following :

(1) 3-keto pentanoic acid;

(2) Methyl butanoate.

**Section B****(Inorganic Chemistry)**

4. Answer any *two* of the following :
- Define Ionization Potential. Explain the factors affecting on it.
  - Define the following terms :
    - Periodicity
    - Atomic radius
    - Ionic radius
    - Covalent radius
    - van der Waals radius.
  - Why the electron affinity of nitrogen (N) is almost zero while that of Fluorine (F) is very high ?
    - Write the electronic configuration of noble gases.
  - Give the preparation and any *four* properties of  $\text{XeF}_4$ . Explain its structure.