

This question paper contains 5 printed pages]

**W—42—2018**

**FACULTY OF SCIENCE**

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

**OCTOBER/NOVEMBER, 2018**

**(CBCS/CGPA Pattern)**

**CHEMISTRY**

**Paper I**

**(Organic and Inorganic Chemistry)**

**(MCQ+Theory)**

**(Friday, 12-10-2018)**

**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 :

(i) The IUPAC nomenclature of ether is .....

(A) Alkyl alkanoate (B) Alkoxyalkane

(C) Alkanol (D) Alkanal

(ii) The correct order of selection of parent chain is .....

(A) Functional group > Multiple bond > Substituent

(B) Functional group > Substituent > Multiple bond

(C) Multiple bond > Substituent > Functional group

(D) Multiple bond > Functional group > Substituent

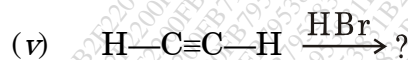
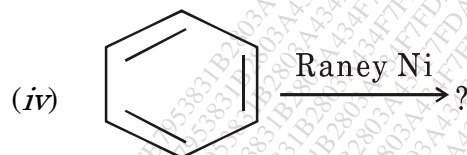
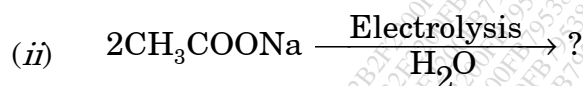
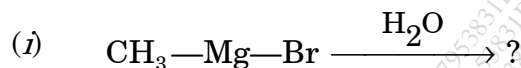
P.T.O.

- (iii) Which of the following is an electrophile ?
- (A)  $\ddot{\text{N}}\text{H}_3$  (B)  $\text{H}_2\ddot{\text{O}}$   
 (C)  $\text{BF}_3$  (D)  $\text{OH}^-$
- (iv) Breaking of carbon-carbon bond at high temperature in the absence of air is known as .....
- (A) oxidation (B) reduction  
 (C) hydrolysis (D) pyrolysis
- (v) ..... is an example of cumulated diene.
- (A) 1, 3-butadiene (B) 1, 4-pentadiene  
 (C) 1, 2-propadiene (D) all of these
- (vi) Conversion of but-1-yne to but-1-ene is ..... reaction.
- (A) Addition (B) Elimination  
 (C) Substitution (D) Rearrangement
- (vii)  $\text{CH}_3-\text{CH}-\text{CH}_2 \xrightarrow[\text{CH}_3\text{OH}]{\text{H}^+} ?$
- (A)  $\text{CH}_3-\text{CH}-\text{CH}_2-\text{OH}$   
 $\quad \quad \quad |$   
 $\quad \quad \quad \text{OCH}_3$
- (B)  $\text{CH}_3-\text{CH}-\text{CH}_2-\text{OCH}_3$   
 $\quad \quad \quad |$   
 $\quad \quad \quad \text{OH}$
- (C)  $\text{CH}_3-\text{CH}-\text{CH}_3$   
 $\quad \quad \quad |$   
 $\quad \quad \quad \text{OH}$
- (D)  $\text{CH}_3-\text{CH}_2-\text{CH}_2-\text{OH}$
- (viii) Generally in a period atomic size of an atom .....
- (A) Increases (B) Decreases  
 (C) Remains same (D) None of these
- (ix) Highest ionization potential will be of .....
- (A) s-block elements (B) d-block elements  
 (C) Halogens (D) Inert gases





- (iii) Nitrene  
 (iv) Homolytic fission  
 (v) Heterolytic fission.
- (c) Predict the product of the following reactions :



- (d) What is the action of the following on 1-propene ?

- (i) HBr  
 (ii)  $\text{Hg}(\text{OCOCH}_3)_2/\text{H}_2\text{O}$ ,  $\text{NaBH}_4$   
 (iii)  $\text{Cl}_2/\text{H}_2\text{O}$   
 (iv) alk.  $\text{KMnO}_4$   
 (v) HBr,  $\text{H}_2\text{O}_2$

3. Answer any *two* of the following :

- (a) Write a brief note on inductive effect and hyperconjugation effect.  
 (b) How will you convert the following :  
 (i) 1, 3-butadiene to cyclohexene  
 (ii) 1, 4-butane diol to 1, 3-butadiene  
 (iii) Ethene to glycol  
 (iv) Calcium carbide to ethyne  
 (v) Calcium adipate to cyclopentane.

- (c) What are alcohols ? Give its classification.
- (d) (i) Write suffixes for the following functional groups :
- (1) R—COOR'
  - (2) R—COOH
  - (3) R—CONH<sub>2</sub>.
- (ii) What are epoxides ? Give its example.

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

4. Answer any *two* of the following :
- (a) Give the characteristics of *d*-block elements.
  - (b) Define electronegativity. Explain the factors affecting it and give its periodic trends.
  - (c) (i) Give the difference between ionisation energy and electron affinity.  
(ii) Give the electronic configuration of noble gases.
  - (d) Give any *one* method of preparation and any *two* properties of XeF<sub>6</sub>. Explain why XeF<sub>6</sub> is a distorted octahedron.