

This question paper contains 4 printed pages]

Y—47—2019

FACULTY OF SCIENCE

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

OCTOBER/NOVEMBER, 2019

CHEMISTRY

Paper I

(Organic and Inorganic Chemistry)

(MCQ + Theory)

(Wednesday, 16-10-2019)

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) Only one answer sheet should be used for Sections A and B.

MCQ

10

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

(i) The IUPAC name of $\text{H}_2\text{C}=\text{CH}-\text{CH}=\text{CH}_2$ is :

- (A) 1, 4-pentadiene
- (B) 1, 3-butadiene
- (C) 1, 2-propadiene
- (D) None of these

(ii) Which of the following carbocations will be more stable ?

- (A) CH_3^{\oplus}
- (B) $\text{CH}_3\text{CH}_2^{\oplus}$
- (C) $(\text{CH}_3)_2\text{CH}^{\oplus}$
- (D) $(\text{CH}_3)_3\text{C}^{\oplus}$

(iii) The angle strain in cyclopropane is :

- (A) $+24^\circ 44'$
- (B) $+9^\circ 44'$
- (C) $-5^\circ 44'$
- (D) $+0^\circ 44'$

P.T.O.

(iv) When electrolysis of sodium acetate is carried out, we get :

- (A) Methane (B) Ethylene
(C) Ethane (D) Acetylene

(v) Ethylene on oxidation with alkaline KMnO_4 gives :

- (A) Ethanol (B) Ethylene glycol
(C) Ethane 1, 2 diol (D) Both (B) and (C)

(vi) The reaction



mainly gives :

- (A) 2-bromobutane (B) 1-bromopropane
(C) 2, 2-dibromopropane (D) 1, 2-dibromopropane

(vii) Which of the following is per acids ?

- (A) CH_3COOOH (B) $\text{C}_6\text{H}_5\text{COOOH}$
(C) CF_3COOOH (D) All of these

(viii) Which of the following statements is correct in case of electron affinity ?

- (A) Electron affinity decreases along the group
(B) Electron affinity increases across the period
(C) Both (A) and (B)
(D) None of the above

(ix) The most electromagnetism element amongst the following :

- (A) F (B) Cl
(C) Br (D) I

(x) The number of lone pairs and bonded pairs present in XeF_2 respectively are :

- (A) 2, 3 (B) 3, 2
(C) 2, 2 (D) 3, 4

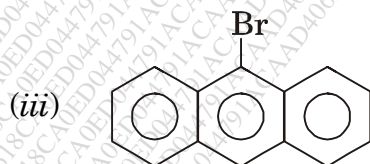
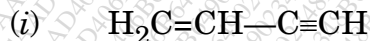
Theory**Section-A****(Organic Chemistry)**

2. Answer any *two* of the following : 10

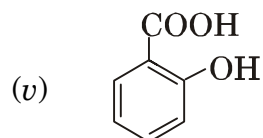
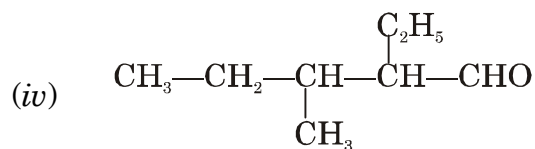
- (a) Explain the terms electrophile and nucleophile.
- (b) Write notes on :
- (i) Kolbe's synthesis
- (ii) Corey-House synthesis
- (c) How will you prepare 1,3-butadiene from :
- (i) 1,4-dibromobutane
- (ii) 1, 4-butanediol.
- (d) Explain ring opening reaction of epoxide by using :
- (i) Acidic reagent
- (ii) Basic reagent.

3. Answer any *two* of the following : 10

- (a) How will you prepare ethyne from iodoform ? Explain addition of H-Br to ethyne with mechanism.
- (b) What are carbocation ? Explain the formation and stability of carbocation.
- (c) Write the correct IUPAC names of the following compounds :



P.T.O.



- (d) (i) What are alcohols ? How are they classified ?
 (ii) Write the correct structure of the following :
 (1) Benzyl alcohol
 (2) Ethyl ethanoate.

Section B
(Inorganic Chemistry)

4. Answer any *two* of the following : 10
- (a) Define Ionization Energy. Give any *three* factors affecting it and explain why second I.P. is greater than first I.P.
- (b) Give the applications of electronegativity to bond properties.
- (c) (i) Write any *five* general characteristics of *d*-block elements.
 (ii) Explain the formation of compounds of inert gases under excited condition.
- (d) Give any *two* methods of preparation and any *four* properties and structure of XeF_2 .