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BF—40—2016

FACULTY OF SCIENCE

B.Sc. (First Semester) EXAMINATION

OCTOBER/NOVEMBER, 2016

(CBCS Pattern)

CHEMISTRY

Paper CCC-I

(Organic and Inorganic Chemistry)

(MCQ + Theory)

(Friday, 14-10-2016)

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) Which of the following is heterocyclic compound ?

(A) Aniline

(B) Benzoic acid

(C) Furan

(D) Phenol

(ii) Nitration of benzene is

(A) Nucleophilic substitution

(B) Electrophilic substitution

(C) Free radical substitution

(D) Nucleophilic addition

(iii) is an Gilman reagent.

(A) R-Mg-X

(B) R-Li

(C) R₂Zn

(D) R₂CuLi

(iv) When iodoform is heated with silver powder yields

(A) CH₂ = CH₂

(B) HC ≡ CH

(C) CH₄

(D) CH₃ - CH₃

P.T.O.

- (v) The final product of the following reaction is :



- (A) $\begin{array}{c} \text{CH}_2-\text{CH}_2 \\ | \quad | \\ \text{Br} \quad \text{Br} \end{array}$ (B) $\begin{array}{c} \text{Br} \\ / \\ \text{CH}_3-\text{CH} \\ \backslash \\ \text{Br} \end{array}$
- (C) $\text{H}_2\text{C}=\text{CH}-\text{Br}$ (D) $\text{CH}_3-\text{CH}_2-\text{Br}$
- (vi) Alkaline hydrolysis of oils and fats is known as
- (A) Saponification (B) Esterification
- (C) Acidification (D) Neutralization
- (vii) The electron deficient species which attracts the negatively charged carbanion are known as
- (A) Nucleophile (B) Electrophile
- (C) Mesophile (D) None of these
- (viii) Highest electron affinity element is
- (A) F (B) Cl
- (C) Br (D) I
- (ix) In modern periodic table, how the elements are arranged
- (A) Increasing mass (B) Increasing volume
- (C) Increasing atomic number (D) Alphabetically
- (x) Hybridization involved in XeF_2 is
- (A) sp^3d (B) sp^3d^2
- (C) sp^3d^3 (D) None of these

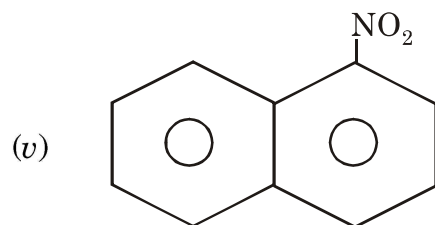
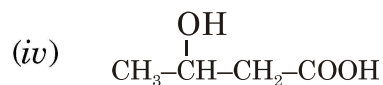
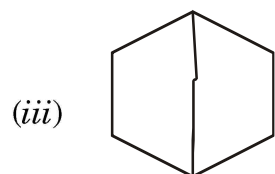
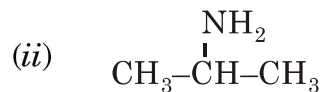
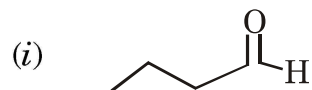
Theory

Section A

(Organic Chemistry)

2. Answer any *two* of the following :
- (a) What is meant by fission ? Explain the types of bond fission with suitable examples.
- (b) What are alkanes ? Explain pyrolysis with mechanism.

(c) Give the IUPAC names of the following :



(d) How will you prepare 1, 3-butadiene from ?

(i) 1, 4-dibromobutane

(ii) 1, 4-butanediol

What is the action of HBr on 1, 3-butadiene ?

3. Answer any *two* of the following :

(a) (i) What is the action of the following on ethylene glycol ?

(1) Lead tetraacetate

(2) ZnCl_2

(3) HCl

(ii) Explain hyperconjugation with suitable example.

- (b) What are carbocation ? Give its preparation, structure and stability.
- (c) Define the term epoxide. Explain ring opening reaction of propylene oxide by acidic and basic reagent.
- (d) Predict the product of the following :
- (i) $\text{CH}_2=\text{CH}_2 \xrightarrow{\text{Br}_2} ?$
- (ii) $\text{CH}_3-\text{CH}=\text{CH}_2 \xrightarrow{\text{HBr}} ?$
- (iii) $\text{CaC}_2 \xrightarrow{\text{H}_2\text{O}} ?$
- (iv) $\text{CH}_3-\text{CH}=\text{CH}_2 \xrightarrow{\text{HOCl}} ?$
- (v) $\text{CH}_2=\text{CH}_2 \xrightarrow{\text{alc. KMnO}_4} ?$

Section B

(Inorganic Chemistry)

4. Answer any *two* of the following :
- (a) Define electronegativity. Explain any *three* factors affecting on it. Give its periodic trends.
- (b) Write the general characteristics of *d*-block elements.
- (c) (i) Why the second I.P. of sodium is very high as compared to its first I.P. ?
- (ii) Write a note on Clathrates of noble gases.
- (d) Give any *two* methods of preparation of XeF_6 and explain its structure.