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B—47—2019

FACULTY OF SCIENCE

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

MARCH/APRIL, 2019

(CBCS/CGPA Pattern)

CHEMISTRY

Paper I

(Organic and Inorganic Chemistry)

(MCQ & Theory)

(Friday, 22-3-2019)

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

1. Select the *correct* answer for each of the following Multiple Choice Questions : 10

(i) The IUPAC name of $\text{CH}_3\text{—O—C}_2\text{H}_5$ is :

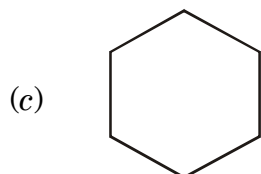
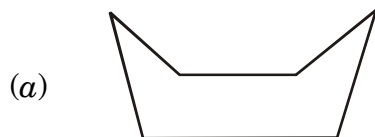
- (a) Methoxyethane
- (b) Ethoxymethane
- (c) Propanone
- (d) Ethylmethyl Ether

(ii) Heterolytic fission of a covalent bond can form :

- (a) Free radical
- (b) Both carbocation and carbanion
- (c) Only carbocation
- (d) Only carbanion

P.T.O.

(iii) Which of the following compounds is free from angle strain ?



(d) All of these

(iv) The thermal decomposition of alkane in the absence of air is called :

(a) Combustion

(b) Oxidation

(c) Cracking

(d) Hydrogenation

(v) Epoxide is also called as :

(a) Oxirane

(b) Epoxy ethane

(c) Oxetane

(d) Both (a) and (b)

(vi) 1, 3-butadiene is an example of diene.

(a) Cumulated

(b) Isolated

(c) Conjugated

(d) None of these

(vii) Glycerol is react with nitrating mixture, the obtained product is :

(a) Nitroglycerine

(b) Glyceryl trinitrate (TNG)

(c) 2-nitropropane

(d) Both (a) and (b)

(viii) In modern periodic table, elements are arranged according to :

(a) Increasing mass

(b) Decreasing volume

(c) Increasing atomic number

(d) Alphabetically

(ix) The ion with smallest radius is :

(a) Na^+

(b) Ca^{++}

(c) Mg^{++}

(d) Al^{+++}

- (x) Amongst the noble gases which do not form clathrate compounds ?
- (a) He (b) Ne
- (c) Kr (d) Xe

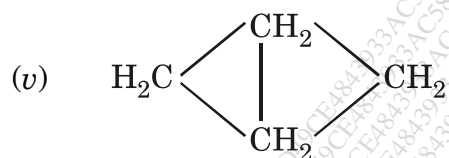
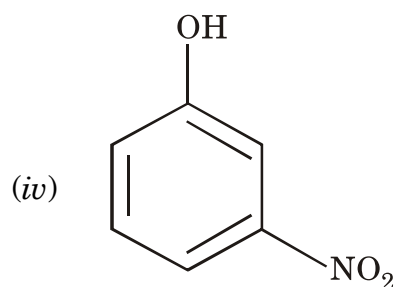
Theory

Section A

(Organic Chemistry)

2. Answer any *two* of the following :
- (a) Explain the terms Homolytic and Heterolytic fission.
- (b) How will you prepare cyclopentane from diethyladipate ?
- (c) Explain free radical addition of HBr to propene.
- (d) How will you prepare glycerol from :
- (i) Oils and Fat
- (ii) Propene.
3. Answer any *two* of the following :
- (a) How will you prepare ethyne from calcium carbide ? Explain addition of Br₂ to ethyne with mechanism.
- (b) What are carbene ? Explain the formation and stability of carbene.
- (c) Write the *correct* IUPAC names of the following :
- (i) $\text{CH}_3\text{—CH}_2\text{—CH}_2\text{—CHO}$
- (ii) $\text{CH}_3\text{—CH}_2\text{—C—Cl}$
||
O
- (iii) $\text{CH}_3\text{—CH—CH}_2\text{—COOH}$
|
OH

P.T.O.



- (d) (1) What is the action of the following on ethylene glycol :
- (i) HCl
- (ii) $(\text{CH}_3\text{COO})_4\text{Pb}$.
- (2) Write the correct structure of the following :
- (i) 4-methylhexane-2-ol
- (ii) 2-pentanone.

Section B

(Inorganic Chemistry)

4. Answer any *two* of the following :

- (a) Define electron affinity and explain the factors affecting it.
- (b) Discuss the Pauling's approach of electronegativity.
- (c) (i) Write any *five* general characteristics of *p*-block elements.
 (ii) Give the electronic configuration of noble gases.
- (d) Give any *two* methods of preparation, any *four* properties of XeF_4 and explain why XeF_4 is square planar.