This question paper contains **2** printed pages]

X—28—2019

FACULTY OF SCIENCE AND TECHNOLOGY

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

OCTOBER/NOVEMBER, 2019

(New Course)

CHEMISTRY

Paper-I (CCC-I)

(Organic + Inorganic Chemistry)

(Wednesday, 16-10-2019) **Time : 10.00 a.m. to 12.00 noon**

Time—2 *Hours* *Maximum Marks*—40

N.B. :—Attempt *All* questions.

1. Solve any *three* of the following : 15

   (*a*) Define electronegativity. Explain the factors affecting on it.

   (*b*) Define the following terms :

   (*i*) van der Waals radius

   (*ii*) Covalent radius

   (*iii*) Periodicity

   (*iv*) Ionic radius

   (*v*) Atomic radius.

   (*c*) Explain long form of periodic table.

   (*d*) Give the preparation and any *four* properties of XeF_2. Explain its structure.

   (*e*) Define noble gases elements. Explain clathrates of noble gases.

2. Solve any *three* of the following : 15

   (*a*) Explain hyper-conjugation effect with suitable examples.

   (*b*) (*i*) Explain the electrophilic addition of HBr to propene with mechanism.

   (*ii*) How will you prepare ethane from sodium salt of carboxylic acid ?

   (*c*) What is carbanion ? Give structure and stability of carbanion.

   (*d*) Define the Alkynes. Explain electrophilic addition of Br_2 to ethyne.

   (*e*) Explain the homolytic and heterolytic fission with suitable example.

P.T.O.

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

(*a*) How will you prepare 1, 3-butadiene from :

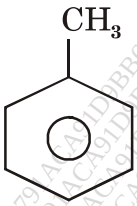
(*i*) 1, 4-dibromobutane

(*ii*) 1, 4-butanediol.

(*b*) Give the IUPAC names of the following :

(*i*) $CH_3—CH_2—\underset{\displaystyle CH_3}{\underset{|}{CH}}—CH_2—Cl$

(*ii*) $CH_3—\underset{\displaystyle NH_2}{\underset{|}{CH}}—CH_2—COOH$

(*iii*) 

(*iv*) $CH_3—CH_2—COCl$

(*v*) 

(*c*) What is Saches Mohr theory of strainless ring ?

(*d*) Draw the structures of the following compounds :

(*i*) 3-methyl butanoic acid

(*ii*) propan-2-ol

(*iii*) 1, 2-dichlorobenzene

(*iv*) Ethanoic anhydride

(*v*) Cyclopentane.