This question paper contains **3** printed pages]

SB—09—2022

FACULTY OF SCIENCE

B.Sc. (First Semester) EXAMINATION

MAY/JUNE, 2022

(CBCS/New Pattern)

CHEMISTRY

Paper–I

(Organic and Inorganic Chemistry)

(Tuesday, 7-6-2022) **Time : 10.00 a.m. to 12.30 p.m.**

Time— 2½ *Hours* *Maximum Marks*—40

N.B. :—Attempt *all* questions.

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

   (*a*) Define the following terms :

   (*i*) Atomic Radius

   (*ii*) Ionic Radius

   (*iii*) Periodicity

   (*iv*) Covalent Radius

   (*v*) van der-Wals' Radius.

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

   (*c*) (*i*) Write any *five* general characteristics of *d*-Block elements.

   (*ii*) Define Ionisation Energy. Give the factors affecting on it.

   (*d*) Give any *two* preparations, *four* properties and structure of XeF_4.

   (*e*) What is meant by clathrates ? Explain clathrates of Noble gases.

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

   (*a*) Explain Homolytic Fission and Heterolytic Fission.

   (*b*) Explain Hyperconjugation effect with suitable example.

P.T.O.

(*c*) How will you prepare Ethane by :

(*i*) Kolbe's Electrolysis method

(*ii*) From Grignard's Reagent.

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

(*e*) What is Carbanion ? Give the structure and stability of carbanion.

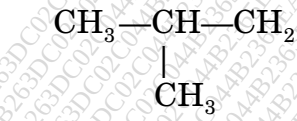
3. Attempt any *two* of the following : 10

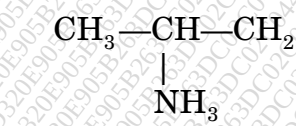
(*a*) Explain the addition reactions of 1, 3-butadiene with the following :

(*i*) HBr

(*ii*) Br_2.

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

(*i*) 

(*ii*) 

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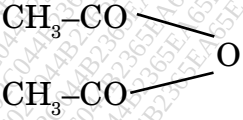
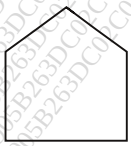
(*iv*) 

(*v*) 

(*c*) Describe Sachse–Mohr theory of Strainless Ring.

(*d*) Give the structures of the following :

(*i*) 2-methyl pentanoic acid

(*ii*) 2-chloro toluene

(*iii*) ethanoyl chloride

(*vi*) Cyclohexane

(*v*) Pentan–2-ol.

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