

This question paper contains 3 printed pages]

VA—05—2024

FACULTY OF SCIENCE

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

NOVEMBER/DECEMBER, 2024

(CBCS/New Pattern)

CHEMISTRY

Paper-I

(Organic and Inorganic Chemistry)

(Saturday, 30-11-2024)

Time : 10.00 a.m. to 12.00 noon

Time—2 Hours

Maximum Marks—40

N.B. :— Attempt *all* questions.

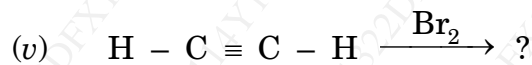
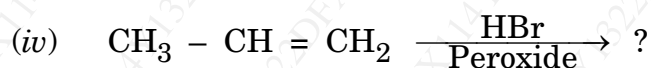
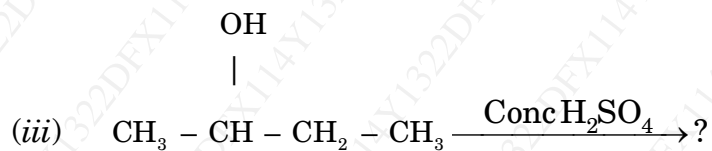
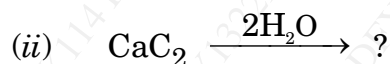
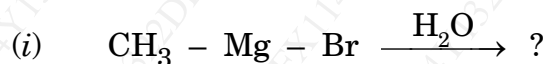
1. Solve any *three* of the following : 15
- (a) Define the following terms :
- (i) Atomic radius
 - (ii) Electron affinity
 - (iii) Electronegativity
 - (iv) Ionization energy
 - (v) Ionic radius.
- (b) What are clathrates ? Explain structure of XeF_2 .
- (c) What are *f*-block elements ? Give their general characteristics.

P.T.O.

- (d) Explain factors affecting on electronegativity and give their periodic trends.
- (e) Write *two* preparation methods any *three* properties of XeF_4 .

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

- (a) Define carbocation. Give its structure and stability.
- (b) What are alkenes ? Explain addition of HBr to propene with mechanism.
- (c) What are substrate and reagent ? Explain hyperconjugation in toluene.
- (d) Predict the products of the following :



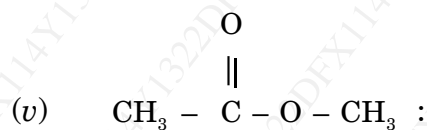
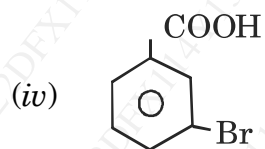
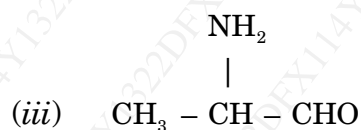
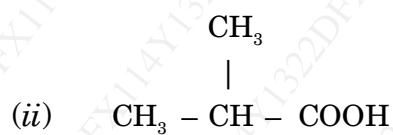
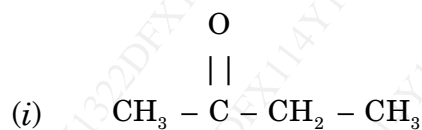
- (e) How will you differentiate electrophiles and nucleophiles ?

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

- (a) What are organic compounds ? Give their classification on the basis of functional groups.

(b) What are cycloalkanes ? Explain Baeyer strain theory.

(c) Write the IUPAC names of the following :



(d) How will you prepare 1, 3-butadiene from 1, 4-dibromobutane ? What is the action of Br_2 and HBr on 1, 3-butadiene ?