033CHE011 – F – 24 – 6569

THIRD SEMESTER B.SC. (NEP) DEGREE EXAMINATION, FEBRUARY 2024
(DSC – 1)
CHEMISTRY

Time : 2 Hours] [Max. Marks : 60

Instructions : 1) *All Sections are* ***compulsory.***
2) *Draw neat labelled diagrams and give equations* ***wherever*** *necessary.*

SECTION – A

I. Answer **any five** of the following. **Each** question carries **2** marks.

1) Which compound is called inorganic benzene ? Why ?
2) How is XeO_3 prepared ? Draw its structure.
3) How do you prepare benzene from Wurtz-Fittig reaction ?
4) State first law of thermodynamics.
5) Define powder metallurgy.
6) What is common ion effect ? **(5×2=10)**

SECTION – B

II. Answer **any four** questions. **Each** question carries **5** marks.

7) Discuss the different types of Van der Waal's forces.
8) Explain the mechanism of sulphonation of benzene.
9) State and explain Joule-Thomson's effect.
10) Name two important-ores of Titanium with their formulae. How is Titanium extracted from ilmenite ?
11) Discuss the mechanism and stereochemistry of S_N2 reaction. **(4×5=20)**

[P.T.O.

13 (a) Explain the mechanism of Pinacol-Pinacolone rearrangement. (5 marks)

(b) Explain the following reactions :

(i) Gattermann reaction.

(ii) Baltz-Schiemann reaction.

(5 marks)

14 (a) Derive the equation for a variation of enthalpy of a reaction with temperature (Kirchoff's equation).

(5 marks)

(b) Write a note on association and dissociation of solute in one of the solvent.

(5 marks)

15 (a) Write a note on non-ferrous alloy. (5 marks)

(b) Draw Ellingham diagram. Explain its salient features. (5 marks)

[3 × 10 = 30 marks]