034CHE011 – S – 23 – 2468

FOURTH SEMESTER B.SC. (NEP) DEGREE EXAMINATION, AUG./SEPT. 2023

DSC – 1 : CHEMISTRY

E365414

Time : 2 Hours] [Max. Marks : 60

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

PART – A

I. Answer **any five** of the following. **Each** question carries **two** marks. **(5×2=10)**

1) What are transition elements ? Write the general electronic configuration of d-block elements.
2) What are in-organic polymers ? Give examples.
3) What are simple and mixed ketones ? Give examples.
4) Why is the α-hydrogen containing aldehydes and ketones are acidic in nature ?
5) State second law of thermodynamics.
6) Mention the classification of detergents with examples.

PART – B

II. Answer **any four** questions. **Each** question carries **five** marks. **(4×5=20)**

7) What are lanthanides ? Explain the separation of lanthanides by ion-exchange method.
8) Explain the mechanism of Kolbe's reaction.
9) Derive an expression for the entropy changes of a reversible process.
10) Write the manufacture of land cement.
11) a) Write the physical significance of entropy. 3
    b) What are thinners ? Give an example. 2

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PART – C

III. Answer **any three** questions. **Each** question carries **ten** marks. **(3×10=30)**

12) a) Give the comparison between in-organic and organic polymers. **5**

b) State Pearson's HSAB principle. Mention its applications. **5**

13) a) Explain with mechanism of acid catalysed ring opening of an epoxide. **5**

b) What is Cannizzaro reaction ? Explain its mechanism. **5**

14) a) Derive an expression for Gibbs-Helmholtz equation. **5**

b) Derive Michaelis-Menten equation for enzyme catalysed reactions. **5**

15) a) Explain the manufacture of urea and mention its uses. **5**

b) Explain the manufacture of soap by hot process. **5**