K23U 3413

Reg. No. : .....

Name : .....

III Semester B.Sc. Degree (CBCSS – OBE – Regular/Supplementary/ Improvement) Examination, November 2023
(2019 to 2022 Admissions)
COMPLEMENTARY ELECTIVE COURSE IN CHEMISTRY/POLYMER CHEMISTRY
3C03CHE/PCH(BS) : Chemistry (For Biological Science)

Time : 3 Hours

Max. Marks : 32

***Instruction** : Answer the questions in **English** only.*

SECTION – A

Very short answer type. **Each** carries **1** mark. Answer **all 5** questions.

1. Give an example for thermoplastics.
2. Write one example for a nucleophile.
3. _____ is constant in an isochoric process.
4. Equation for the half-life of first order reaction is _____.
5. Give an example for chelate ligand.

(5×1=5)

SECTION – B

Short answer type. **Each** carries **2** marks. Answer **any 4** questions out of 6.

6. State Markownikoff rule.
7. Explain S_N1 mechanism with example.
8. Define heat capacity.
9. State and explain Werners theory of co-ordination.
10. Define chirality with example.
11. Name the co-ordination compounds :
    $[CO(NH_3)_2Cl_2]$ and $[Ni(H_2O)_6]^{2+}$.

(4×2=8)

P.T.O.

SECTION – C

Short essay type. **Each** carries **3** marks. Answer **any 3** questions out of 5.

12. State and explain Walden inversion.

13. What is optical isomerism ? Explain with example.

14. Give an account of synthetic fibres.

15. The half-life of first order reaction is 100 seconds, if the initial concentration of the reaction is 2mol L^{-1}. How much of it will be consumed in 250 seconds ?

16. If the change in internal energy for the process $MCO_3 \rightarrow MO + CO_2$ is 105 KJ at 400 K and 1 atm. pressure, calculate enthalpy change. **(3×3=9)**

SECTION – D

Long essay type. **Each** carries **5** marks. Answer **any 2** questions out of 4.

17. a) What are the factors affecting the stability of co-ordination compounds ?
    b) Give applications of co-ordination compounds. **(3+2)**

18. a) Explain the difference between enantiomer and diastereomers.
    b) Discuss the optical isomerism of lactic acid. **(3+2)**

19. a) Explain mechanism of S_N2 reaction.
    b) Discuss the concept of spontaneous and non-spontaneous process. **(3+2)**

20. a) What are the factors affecting the rate of reaction ?
    b) Explain the collision theory of reaction. **(2+3)**

(2×5=10)
