Reg. No. : ....

Name : ....

Third Semester B.Sc. Degree (CBCSS – OBE – Regular/Supplementary/ Improvement) Examination, November 2022
(2019 Admission Onwards)
COMPLEMENTARY ELECTIVE COURSE IN CHEMISTRY/POLYMER CHEMISTRY CORE
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 a copolymer.

2. The polarization of a carbon-carbon double bonds takes place in the presence of an attacking reagent is called _____

3. The process in which the pressure remains constant is known as _____

4. The unit of rate constant for second order reaction is _____

5. _____ is an example for a polydentate ligand.

SECTION – B

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

6. How benzene can be converted to toluene ?

7. Explain why chloramine is a weaker base than ammonia whereas chloroacetic acid is stronger acid than acetic acid.

8. State second law of thermodynamics.

9. What are the factors affecting the stability of metal complexes ?

10. Distinguish between enantiomer and diastereoisomer.

11. Name the co-ordination compounds : $[Pt(NH_3)_2Br_2$ and $[Zn(OH)_4]^{2-}$.

SECTION – C

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

12. What is peroxide effect ? Explain with an example.

13. What is the origin of geometrical isomerism ? Give any two methods to distinguish between cis and trans isomers.

14. Explain biodegradable polymers with example.

15. A first order reaction has a specific reaction rate of $0.001 \ s^{-1}$. How long will it take for 10 g of the reactant to reduce to 1.5 g ? Also calculate the half-life of the reaction.

16. At what temperature does the reaction :

    $C(s) + H_2O \rightarrow CO(g) + H_2(g)$ become spontaneous if enthalpy and entropy change for the reaction is +131.3 kJ and +133.6 J/K respectively ?

SECTION – D

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

17. a) State the postulates of Werner's theory of Co-ordination complexes.

    b) Give any three applications of Co-ordination complexes.   **(2+3)**

18. a) What is a racemic mixture ? Give any methods for the resolution of racemic mixture.

    b) Give any two applications of (a) Phenol-formaldehyde resin and (b) Buna S. **(3+2)**

19. a) Explain the mechanism of S_N1 reaction.

    b) What is the criteria for reversible and irreversible process in terms of free energy ?   **(3+2)**

20. a) How does the temperature influence the rate of a reaction ? Explain.

    b) Explain the transition state theory of reaction rates.   **(2+3)**