III Semester B.Sc. Degree CBCSS (OBE) – Regular Examination, November 2020
(2019 Admission Only)
COMPLEMENTARY ELECTIVE COURSE IN CHEMISTRY/POLYMER CHEMISTRY
3C03CHE/PCH(BS) : Chemistry (For Biological Sciences)

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. Which is more acidic : acetic acid or chloroacetic acid ?

2. The separation of a racemic mixture into its *d* and *l* components is called _____

3. Give two examples for copolymers.

4. The thermodynamic variable, which is the sum of internal energy and the product of pressure and volume is known as _____

5. The substance which increases the activity of a catalyst is known as _____

(5×1=5)

SECTION – B

(Short answer type – **Each** carries 2 marks – Answer 4 questions out of 6)

6. Distinguish between unidentate and bidentate ligands.

7. What is meant by peroxide effect ?

8. Define conformational isomerism.

9. Name any one synthetic rubber and give its uses.

10. State the first law of thermodynamics and explain.

11. Calculate the half-life of a first order reaction of rate constant 0.025 min^{-1}. **(4×2=8)**

SECTION – C

(Short essay type – **Each** carries **3** marks – Answer **3** questions out of 5)

12. Predict the magnetic behavior of $[Co(CN)_6]^{3-}$ ion, on the basis of valence bond theory.

13. Describe geometrical isomerism taking 2-butene as example.

14. Distinguish between thermoplastics and thermosetting plastics.

15. Define Gibb's free energy. Discuss its physical significance.

16. How does collision theory explain the effect of temperature on the reaction rate ?

(3×3=9)

SECTION – D

(Long essay type – **Each** carries **5** marks – Answer **2** questions out of 4)

17. a) What are the main postulates of Werner's theory of coordination complexes ?

    b) Find the effective atomic number of central atom of $[Cu(NH_3)_6]^{2+}$.

18. Describe the mechanism of an S_N1 reaction.

19. a) Discuss the mechanism of nitration of benzene.

    b) Explain the physical significance of entropy.   **(2+3)**

20. a) Write a note on optical isomerism of lactic acid.

    b) What are the factors affecting the rate of a chemical reaction ?   **(2+3)**

(2×5=10)

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