



K21U 1813

Reg. No. :

Name :

III Semester B.Sc. Degree (CBCSS – O.B.E. – Regular/Supplementary/
Improvement) Examination, November 2021
(2019 and 2020 Admissions)

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. Name the product formed when benzene is treated with methyl chloride in presence of anhydrous AlCl_3 .
2. Stereoisomers that are not mirror images of each other are called
3. The monomer of natural rubber is
4. The amount of heat required to raise the temperature of the unit mass of gas through one degree at constant volume, is called
5. If rate = rate constant (k), the order of the reaction is

SECTION – B

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

6. Give the names of the complexes : $[\text{Cr}(\text{H}_2\text{O})_4\text{Cl}_2]\text{Cl}$ and $\text{Na}_2[\text{SnCl}_6]$.
7. State and illustrate Markownikoff's rule.
8. The conformations of ethane cannot be isolated. Why ?

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9. What is meant by step polymerization ?
10. State first law of thermodynamics.
11. What is meant by pseudo first order reaction ?

SECTION – C

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

12. Calculate the effective atomic number of the following complexes :
 - a) $K_4[Fe(CN)_6]$
 - b) $[Co(NH_3)_6]Cl_3$
13. Describe the optical isomerism of tartaric acid.
14. Distinguish between thermoplastics and thermosetting plastics.
15. Enthalpy and entropy changes of a reaction are $40.63 \text{ kJ mol}^{-1}$ and $108.8 \text{ JK}^{-1} \text{ mol}^{-1}$, respectively. Predict the feasibility of the reaction at 27° C .
16. How does collision theory explain the effect of temperature on the reaction rate ?

SECTION – D

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

17. Discuss the factors affecting the stability of metal complexes.
18. Explain the mechanism of an S_N2 reaction.
19. a) Among formic acid and acetic acid, which is more acidic ? Justify your answer.
b) Explain the physical significance of entropy. **(2+3)**
20. a) Which is more stable : cis-2-butene or trans-2-butene ? Justify your answer.
b) Give any three characteristics of catalysis reactions. **(2+3)**