



K23U 3728

Reg. No. :

Name :

**III Semester B.Sc. Degree (CBCSS – Supplementary)
Examination, November 2023
(2017 and 2018 Admissions)
COMPLEMENTARY COURSE IN CHEMISTRY
3C03CHE(PS) : Chemistry (For Physical Science)**

Time : 3 Hours

Max. Marks : 32

SECTION – A

Answer **all 5** questions. **Each** question carries **1** mark.

1. Write the relation between C_p and C_v .
2. Which radiation is responsible for rotational transition ?
3. What is meant by zero point energy ?
4. Give an example for hexadentate ligand.
5. Name the ore of Ti.

(5×1=5)

SECTION – B

Answer **any 4** questions. **Each** question carries **2** marks.

6. State first law of thermodynamics and give its limitation.
7. Explain the criteria of spontaneous and reversible process in terms of free energy.
8. What is meant by Effective Atomic Number (EAN) ?
9. Why hydrogen in acetylene acidic ?
10. What are isotopes and isotones ?
11. What are Grignard reagents ?

(4×2=8)

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SECTION – C

Answer **any 3** questions. **Each** question carries **3** marks.

12. The rotational spectrum of HCl shows a series of successive lines separated by 0.71433 cm^{-1} . Calculate B and moment of inertia.
13. Explain Mond Process.
14. Explain steric effect using an example.
15. What n/p ratio ? Give its significance.
16. What is meant by binding energy ? How it relates to stability ?

(3×3=9)

SECTION – D

Answer **any 2** questions. **Each** question carries **5** marks.

17. Explain the factors affecting the stability of complex ions.
18. What is meant by aromaticity ? Explain the structure of benzene.
19. Derive an equation for decay constant in terms of the amount of radioactive element and time of decay. Also obtain equation for half life period.
20. What are π -bonding ligands ? Explain the multicenter bonding in metal carbonyls.

(2×5=10)