



K20U 1498

Reg. No. :

Name :

V Semester B.Sc. Degree (CBCSS-Reg./Sup./Imp.)
Examination, November 2020
(2014 Admn. Onwards)
CORE COURSE IN CHEMISTRY
5B10 CHE : Physical Chemistry – II

Time : 3 Hours

Max. Marks : 40

SECTION – A

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

1. What is chemical potential ?
2. State Nernst distribution Law.
3. Write the relation between K_p and K_c for the reaction, $N_2O_{4(g)} \rightleftharpoons 2NO_{2(g)}$.
4. What is Zeta potential ? (4×1=4)

SECTION – B

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

5. What are intensive and extensive properties ?
6. State and explain Zeroth law of thermodynamics.
7. Write and explain Kirchoff's equation.
8. What is Joule-Thomson effect ?
9. Calculate the free energy change occurs when 1 mole of an ideal gas expands isothermally and reversibly from a volume of 100 dm^3 to 1000 dm^3 at 25°C .
10. Explain the term absolute entropy.
11. Explain Hardy-Schulze rules.
12. Explain deliquescence and efflorescence with examples.

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13. Explain solvent extraction.

14. Write and explain the terms involved in BET equation. (7×2=14)

SECTION – C

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

15. Derive Gibb-Helmholtz equation.

16. Write and explain Maxwell's relations.

17. Derive the relation between K_p , K_c and K_x .

18. What are simple eutectic systems explain with an example ?

19. Derive the Phase rule.

20. Derive Langmuir adsorption isotherm. (4×3=12)

SECTION – D

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

21. Derive Clapeyron-Clausius equation. Explain application of this equation to solid-liquid and solid-vapour equilibrium.

22. Explain Joule-Thomson effect. Derive the expression for Joule-Thomson coefficient.

23. State and explain Le-Chatelier' principle. Discuss the effect of temperature, pressure and concentration of reactants on following equilibria,



24. What are one component systems ? Explain Sulphur system with the help of phase diagram. (2×5=10)