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K19U 2220

Reg. No. : .....

Name : .....

V Semester B.Sc. Degree (CBCSS-Reg./Sup./Imp.) Examination, November- 2019
(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 **one** mark. **(4×1=4)**

1. What are isochoric and isobaric processes?
2. What is meant by gold number?
3. What is the number of phases that can coexist in equilibrium in a one component system?
4. Define chemical equilibrium

SECTION - B

Answer any **Seven** questions. Each question carries **2** marks. **(7×2=14)**

5. What is meant by zeta potential?
6. What are the factors influencing equilibrium?
7. Write two examples of heterogeneous equilibria.
8. Explain the Nernst heat theorem.
9. State zeroth law of thermodynamics.
10. For the reaction $N_2O_4 \rightarrow 2NO_2$ Kp=0.157 atm.at 300k. Calculate Kc.
11. What are emulsions? Give examples.
12. What is entropy of fusion?
13. What is meant by congruent melting point?
14. Distinguish between physisorption and chemisorptions.

P.T.O.

SECTION - C

Answer Any **Four** questions. Each question carries **3** marks. **(4×3=12)**

15. Explain Bredig's arc method for the preparation of gold sol.
16. State and explain third law of thermodynamics. Explain how absolute entropy of a gas is determined by using the law.
17. Derive Gibbs Helmholtz equation.
18. Explain the functioning of freezing mixtures.
19. Explain how Nernst distribution law is applicable in solvent extraction.
20. Explain the usefullness of Languimir adsorption isotherm.

SECTION - D

Answer any **2** questions. Each question carries **5** marks. **(2×5=10)**

21. Derive vant hoffs reaction isotherm Deduce law of mass action thermodynamically.
22. a) Give an account of the protective colloids. How will you measure its power?

    b) Explain the electrical properties of colloids.
23. a) Derive Gibbs duhem equation.

    b) How much useful work can be done by a carnots engine that works between 273K and 373K if the heat supplied is 1897.8 KJ.
24. a) Distinguish between deliquescence and efflorescence.

    b) Explain the phase diagram of sulphur system.