(Pages : 3) J – 1152

Reg. No. : .....

Name : .....

Fourth Semester B.Sc. Degree Examination, March 2020

First Degree Programme under CBCSS

Complementary Course for Physics

CH 1431.1 PHYSICAL AND INORGANIC CHEMISTRY

(2014 – 2016 Admission)

Time : 3 Hours Max. Marks : 80

SECTION A (Answer in one word/ sentence)

Answer **all** questions :

1. Acid catalyzed hydrolysis of methyl acetate is a ———— reaction.
2. The rate of reaction ———— with increase of temperature.
3. Arrhenius equation is ————.
4. For a first order reaction the half life period is a ————.
5. Quantum yield is ————.
6. Name one law of photochemistry.
7. The process of producing Cold light is called ————.
8. The primary process in the hydrogen chlorine reaction is called the ————
9. For a one component system the phase rule is ————.
10. Alum purifies muddy water by ————.

(10 × 1 = 10)

P.T.O.

SECTION B (short answer type)

Answer any **eight** questions.

11. Why most of the reactions does not occur at room temperature?
12. Define half life period of a reaction.
13. Define activation energy.
14. What do you understand by photosensetisation?
15. Write a few lines on freezing mixtures.
16. Define the term eutectic point.
17. Write the condition for the validity of Nernst distribution law.
18. Write the formula of stable hydrates in ferric chloride – water system.
19. What are azeotropes?
20. What is reverse osmosis?
21. What is syneresis of a gel?
22. What is a high spin complex?

(8 × 2 = 16)

SECTION C (Short essay)

Answer any **six** questions.

23. Explain the collision theory of reaction rates.
24. Derive the expression for the rate constant of a first order reaction.
25. Explain the adsorption theory of catalysis.

26. Explain the terms stable equilibrium and metastable equilibrium.

27. Explain how Raoult's is used for determination of molecular mass of non volatitle solute?

28. Explain the H_2 -Cl_2 reaction in photochemistry.

29. Explain the determination of Avogadro number by using Brownian movement.

30. Explain the valence bond theory of octahedral complexes.

31. Write a note on fractional distillation.

(6 × 4 = 24)

SECTION D (long essay)

Answer any **two** questions.

32. (a) Briefly explain different laws of photochemistry. 8

(b) Discuss the various factors affecting the rate of a reaction. 7

33. (a) Explain the calculation of Arrhenius parameters. 7

(b) Explain the application of co-ordination chemistry in qualitative analysis. 8

34. (a) Explain the vapour pressure- composition curve for non ideal solutions. 8

(b) Explain the crystal field theory of tetrahedral complexes. 7

35. (a) Explain the kinetic and optical properties of colloids. 8

(b) Explain the phase diagram of $Fecl_3^-$ water system. 7

(2 × 15 = 30)
