

Pre Quarterly examination -2023

Class : XII

Chemistry

Time ; 3 Hrs

Section- I

Choose the correct answers.

(15X 1 =15)

- Reaction of acetone with one of the following reagents involves nucleophilic addition followed by elimination of water. The reagent is
 - Grignard reagent
 - Sn / HCl
 - hydrazine in presence of slightly acidic solution
 - hydrocyanic acid
- Which one of the following is used as food preservative?
 - Sodium formate
 - Sodium acetate
 - Sodium benzoate
 - Acetamide
- Which one of the following is used as a surgical anesthetic agent in surgery?
 - Ethanol
 - Ethoxy ethane
 - Methoxy ethane
 - Methoxy propane
- Assertion : Phenol is more reactive than benzene towards electrophilic
Reason : In the case of phenol, the intermediate arenium ion is more stabilized by resonance.
 - if both assertion and reason are true and reason is the correct explanation of assertion.
 - if both assertion and reason are true but reason is not the correct explanation of assertion.
 - assertion is true but reason is false
 - both assertion and reason are false.
- Solid CO₂ is an example of
 - Covalent solid
 - metallic solid
 - molecular solid
 - ionic solid
- If 75% of a first order reaction was completed in 60 minutes, 50% of the same reaction under the same conditions would be completed in
 - 20 minutes
 - 30 minutes
 - 35 minutes
 - 75 minutes
- Which of the following fluoro – compounds is most likely to behave as a Lewis base?
 - BF₃
 - PF₃
 - CF₄
 - SiF₄

8. In non polar molecular solids, molecules are held together by
- (a) London forces (b) weak vanderwaals forces
(c) Strong electrostatic forces (d) strong cohesive forces
9. Which of the following oxidation states is most common among the lanthanoids?
- (a) 4 (b) 2 (c) 5 (d) 3
10. Which one of the following oxide is amphoteric in nature?
- (a) CrO (b) Cr₂O₃ (c) Mn₂O₇ (d) MnO
11. Structure of XeOF₄
- a) Square pyramidal b) pentagonal bipyramidal c) T shaped d) Linear
12. Which is true regarding nitrogen?
- (a) least electronegative element (b) has low ionisation enthalpy than oxygen
(c) d-orbitals available (d) ability to form pπ – pπ bonds with itself
13. Boron reacts with fused sodium hydroxide to forms
- (a) Borax (b) Boric acid (c) Sodium borate (d) Sodium tetraborate
14. An aqueous solution of borax is
- (a) neutral (b) acidic (c) basic (d) amphoteric
15. The metal oxide which cannot be reduced to metal by carbon is
- (a) PbO (b) Al₂O₃ (c) ZnO (d) FeO

Section- II

Answer any six questions and question number 24 is compulsory. (6x 2=12)

16. Which type of ores can be concentrated by froth floatation method? Give two examples for such ores.
17. How will you identify borate radical?
18. Why Cu²⁺ are coloured but those of Zn²⁺ are colourless – Explain
19. How is Phosphine Prepared?
20. Why ionic crystals are hard and brittle?
21. Give two examples for zero order reaction
22. The concentration of hydroxide ion in a water sample is found to be 2.5×10^{-6} M .
Identify the nature of the solution.
23. What happens when 1-phenyl ethanol is treated with acidified KMnO₄ .
24. A carbonyl compound A having molecular formula C₅H₁₀O forms crystalline precipitate with sodium bisulphite and gives positive iodoform test. A does not reduce Fehling solution. Identify A.

Section- III

III. Answer any six questions and question number 33 is compulsory. (6x3 = 18)

25. Explain Kolbe's reaction
26. How will you prepare Cinnamic acid from benzaldehyde.
27. Define half life of a reaction. Show that for a first order reaction half life is independent of initial concentration.
28. Explain Schottky defect.
29. Explain froth floatation method with examples.
30. Write note on Fisher Tropsch Synthesis.
31. What is Holmes signal? Explain.
32. Why transition elements form number of alloys?
33. What is the pH of an aqueous solution obtained by mixing 6 gram of acetic acid and 8.2 gram of sodium acetate making the volume equal to 500 ml (Given: K_a for acetic acid is 1.8×10^{-5})

Section- IV

IV. Answer the following questions

(5x 5 = 25)

34. a) i) What are the differences between minerals and ores?
ii) Describe the structure of diborane. **(Or)**
- b) i) How will you prove the acidic nature of H_2SO_4 ?
ii) Chalcogens belongs to p- block. Give reason.
35. a) what is lanthanide Contraction? and what are the effects of lanthanide contraction. **(Or)**
- b) i) What are the properties of interstitial compounds?
ii) Derive an expression for the density of a crystal.
36. a) Derive an expression for Ostwald's dilution law. **(Or)**
- b) i) Will a precipitate be formed when 0.150 L of 0.1M $Pb(NO_3)_2$ and 0.100L of 0.2 M NaCl are mixed? $K_{sp}(PbCl_2) = 1.2 \times 10^{-5}$
ii) The time for half change in a first order decomposition of a substance A is 60 seconds. Calculate the rate constant. How much of A will be left after 180 seconds?
37. a) Write short note on metal excess and metal deficiency defect with an example. **(Or)**
- b) Write note on i) Phthalein reaction ii) Transesterification
38. a) Write the mechanism of Cannizaro reaction. **(Or)**
- b) i) What is Friedel – Craft acylation? ii) How does benzaldehyde react with ammonia

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