

COMMON QUARTERLY EXAMINATION - 2024

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Standard XII

Reg.No.

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CHEMISTRY

Time : 3.00 hrs

Part - I

Marks : 70

I. Choose the correct answer:

15 x 1 = 15

- Which one of the following ores is best concentrated by froth-flotation method?
 - magnetite
 - haematite
 - galena
 - cassiterite
- The following set of reactions are used in refining zirconium.
$$\text{Zr (impure)} + 2\text{I}_2 \xrightarrow{5233\text{K}} \text{Zr I}_4$$
$$\text{Zr I}_4 \xrightarrow{1800\text{K}} \text{Zr (pure)} + 2\text{I}_2$$
The method is known as
 - liquation
 - Van Arkel process
 - zone refining
 - Mond's process
- In diborane, the number of electrons that accounts for banana bond is
 - six
 - two
 - four
 - three
- Which of the following is not sp² hybridised
 - graphite
 - graphene
 - fullerene
 - dry ice
- Among the following which is the strongest oxidizing agent?
 - Cl₂
 - F₂
 - Br₂
 - I₂
- Which one is Dibasic acid?
 - HPO₃
 - H₂SO₄
 - H₄P₂O₇
 - None
- In acidic medium, potassium permanganate oxidizes oxalic acid to
 - oxalate
 - carbon dioxide
 - acetate
 - acetic acid

8. The most common oxidation state of actinoids is
a) +2 b) +3 c) +4 d) +6
9. The P^H of 10^{-6} M KOH solution will be
a) 8 b) 9 c) 5 d) 6
10. The pH of an aqueous solution is zero. The solution is
a) slightly acidic b) strongly acidic
c) neutral d) basic
11. $HOCH_2CH_2OH$ on heating with periodic acid gives
a) methanoic acid b) glyoxal
c) methanol d) CO_2
12. Half Life period of 1 order reaction is 10 min. What percentage will remain after one hour?
a) 12.5% b) 50% c) 3.125% d) 1.5625%
13. C—O—C bond angle is greater than the tetrahedral bond angle due to repulsive interaction between
a) the two lone pair of oxygen b) the weaker C—O bond
c) the two bulkier alkyl group d) (a) and (c)
14. Gattermann-Koch reaction is a variant of Friedel-Crafts
a) benzoylation b) alkylation
c) formylation d) (a) and (b)
15. Compound which undergo haloform reaction
a) diphenyl ketone b) formaldehyde
c) acetophenone d) none

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XII Chemistry

Part - II

II. Answer any 6 questions. (Q.No.24 is compulsory)

6 x 2 = 12

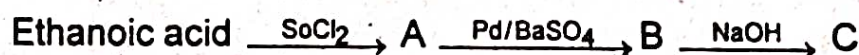
16. Explain the following terms with suitable examples.
 a) Gangue b) Slag
17. Write note on Ethyl borate test.
18. What is known as Holmes signal?
19. Mention the causes of Lanthanoid contraction.
20. What is called packing efficiency or fraction?
21. Write any two examples for the first order reaction.
22. What are Lewi's acids and bases? Give two example for each.
23. Which is known as picric acid? How it is prepared?
24. How acetone undergo haloform reaction?

Part - III

III. Answer any 6 questions. (Q.No.33 is compulsory)

6 x 3 = 18

25. Give the limitations of Ellingham diagram.
26. Explain Fischer-Tropsch synthesis.
27. Write short note on bleaching action of sulphur dioxide.
28. What is chromyl chloride test?
29. Explain Frenkel defect.
30. Explain Pseudo first order reaction with an example.
31. A saturated solution prepared by dissolving $\text{CaF}_{2(s)}$ in water has $[\text{Ca}^{2+}] = 3.3 \times 10^{-4}$ m. What is the K_{sp} of CaF_2 ?
32. Describe the dehydration of Ethylene glycol with
 a) anhydrous ZnCl_2 b) Con. H_2SO_4
33. Identify A, B and C.



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XII Chemistry

Part - IV

5 × 5 = 25

IV. Answer all the questions.

34. a) Explain zone refining process with an example.

(OR)

b) Describe the structure of Diborane.

35. a) i) How chlorine is manufactured by Deacon's process.

ii) Mention any two uses of chlorine.

(OR)

b) Tabulate the difference between Lanthanoids and actinoids.

36. a) Write note on

i) Metal excess defect

ii) Metal deficiency defect

(OR)

b) Derive integrated rate law for a first order reaction.

37. a) Derive Henderson equation for acid buffer solution.

(OR)

b) Derive an expression for the hydrolysis constant and degree of hydrolysis of salt of strong acid and weak base.

38. a) Explain

i) Kolbe's reaction

ii) Phtalein reaction

(OR)

b) What is Cannizaro's reaction? Explain the three steps involved in the cannizaro mechanism reaction.
