

# A COMMON QUARTERLY EXAMINATION - 2023

Standard - XII  
CHEMISTRY

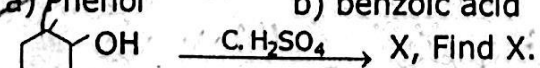
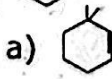
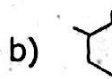
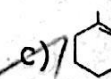
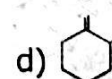
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Marks: 70

Time: 3.00 hrs.

I. Choose the correct answer and write the option code and the corresponding answer:  
15×1=15

- Which of the following is/are acts as depressing agents.  
1. Sodium Carbonate    2. Sodium ethyl Xanthate    3. Sodium Cyanide  
a) 1 & 2    b) 2 & 3    c) 1, & 3    d) 1, 2, & 3
- Boric acid is an acid because its molecule  
a) gives up a proton  
b) Contains replaceable H<sup>+</sup> ion  
c) accepts OH<sup>-</sup> from water, releasing proton  
d) combines with proton to form water molecule
- The compound showing sp<sup>3</sup>d<sup>2</sup> hybridisation is  
a) XeOF<sub>4</sub>    b) XeOF<sub>2</sub>    c) XeO<sub>3</sub>    d) XeF<sub>6</sub>
- The magnetic moment of Fe<sup>2+</sup> ion is  
a) 5.91 BM    b) 4.89 BM    c) 3.87 BM    d) 2.83 BM
- Assertion : Ce<sup>4+</sup> is used as an oxidizing agent in volumetric analysis.  
Reason : Ce<sup>4+</sup> has the tendency of attaining +3 oxidation state.  
a) Both assertion and reason are true and reason is the correct explanation of assertion.  
b) Both assertion and reason are true but reason is not the correct explanation of assertion.  
c) Assertion is true but reason is false  
d) Both assertion and reason are false.
- The vacant space in fcc lattice unit cell is  
a) 48%    b) 23%    c) 32%    d) 26%
- Which among the following is Hydrogen bonded molecular solid  
a) Urea    b) Solid CO<sub>2</sub>    c) naphthalene    d) Solid NH<sub>3</sub>
- After 3 hours, a radioactive substance becomes (1/32)<sup>th</sup> of original amount. Then the half life (in min) is  
a) 60 min    b) 36 min    c) 30 min    d) 45 min
- What is the pH of the resulting solution when equal volumes of 0.1M NaOH and 0.01M HCl are mixed?  
a) 12.65    b) 7.0    c) 3.0    d) 2.0
- The conjugate base of HSO<sub>4</sub><sup>-</sup> is  
a) H<sub>2</sub>SO<sub>4</sub>    b) SO<sub>3</sub>    c) SO<sub>4</sub><sup>2-</sup>    d) None of these
- HOCH<sub>2</sub>CH<sub>2</sub>OH on heating with periodic acid gives  
a) CO<sub>2</sub>    b) Methanal    c) Glyoxal    d) Methanoic acid
- Carbolic acid is  
a) Phenol    b) benzoic acid    c) Phenylacetic acid    d) Picric acid
-   
a)     b)     c)     d) 
- Which one of the following reduces tollen's reagent?  
a) Formic acid    b) acetic acid    c) benzophenone    d) none of these

15. Which of the following is not undergo Cannizzaro reaction?  
 a) Benzaldehyde  
 b) 2, 2 - dimethyl propanal  
 c) Formaldehyde  
 d) 2, 2 - dichloro - ethanal

**II. Answer any six questions. Question No.24 is compulsory:**

6×2=12

16. Write short note on Auto reduction.  
 17. What is meant by Burnt Alum?  
 18. Prove that Sulphuric acid is a dibasic acid.  
 19. Transition metals shows Alloy formation. Why?  
 20. What is meant by the term "Coordination number"? What is the coordination number of atoms in a bcc structure?  
 21. Define solubility product.  
 22. Write Saponification reaction.  
 23. Note on "Urotropine".  
 24. Show that in case of 1st order reaction, the time required for 99.9% completion is nearly ten times the time required for half completion of the reaction.

**III. Answer any six questions. Question No.33 is compulsory:**

6×3=18

25. Give the limitations of Ellingham diagram.  
 26. Write a note on Fisher - Tropsh synthesis.  
 27. Give the balanced equation for the reaction between Chlorine with cold NaOH and Hot NaOH.  
 28. Explain Metal Excess defect.  
 29. Distinguish between Rate and Rate constant.  
 30. Explain common ion effect with an example.  
 31. Write "Reimer - Tiemann" reaction.  
 32. Note on Clemmensen reduction.  
 33. Explain - Why atomic radius of zinc is greater than copper.

**IV. Answer all the questions:**

5×5=25

34. a) Explain Zone refining process.  
 b) Explain the types Silicates and give example for each. (OR)
35. a) i) Give the structure of Ammonia. (2)  
 ii) Give the preparation of Phosphine by using Caustic Soda. (3) (OR)  
 b) i) How Potassium - di - Chromate is prepared from the Ore Chromite? (3)  
 ii) What is Lanthanoid contraction. (2)
36. a) i) Differentiate Crystalline and amorphous solids. (3)  
 ii) Write and Explain Bragg's equation. (2) (OR)  
 b) i) Derive integrated rate law for a zero order reaction.  $A \rightarrow \text{Products}$ . (3)  
 ii) Explain Pseudo First order reaction with an example. (2)
37. a) Derive an expression for Ostwald's dilution law. (OR)  
 b) i) Write the test to differentiate alcohol and phenol. (3)  
 ii) How anisole reacts with one mole of HI. (2)
38. a) i) Explain Haloform reaction. ii) Write HVZ - reaction. (OR)  
 b) Write the Mechanism of "Aldol" condensation.