

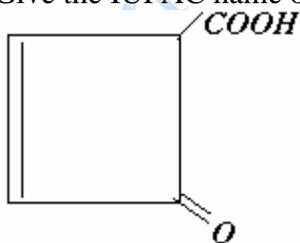
Sample Paper
Class – XII
Subject – Chemistry

General Instruction:

1. All questions are compulsory.
2. Marks of each question are indicated against it.
3. Questions number 1 to 8 are very short answer questions and carry 1 mark each.
4. Questions numbers 9 to 18 are short answer questions and carry 2 marks each.
5. Question numbers 19 to 27 are also short answer questions and carry three marks each.
6. Question numbers 28 to 30 is long answer questions and carry five marks each.
7. Use log tables if necessary. Use of Calculators are not allowed.

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1. Write formulae of the monomers of polythene and Teflon?
2. Why is bithional is added to the toilet soap?
3. Account the following:
4. *o*-nitrophenol has lower boiling point than *p*-nitrophenol
5. Name the purines present in DNA
6. Why are primary amines are higher boiling than tertiary amines?
7. Give the IUPAC name of the following compound



8. Give an example of heterogeneously catalysed reaction
9. What is the oxidation number of Ni in $[\text{Ni}(\text{CO})_4]$?
10. What do you understand by broad spectrum antibiotics? Give one example

11. Distinguish between the terms homopolymer and co polymer and give an example of each.
12. What happens when: (Give chemical reactions)
- Cyclohexanol is treated with Thionyl chloride?
Hydroxybenzyl alcohol is heated with HCl?
13. Define the following terms:
- a. Racemic mixture b) Resolution c) Enantiomers
14. Use valence bond theory predict the geometry and magnetic behaviour of $[\text{Co}(\text{NH}_3)_6]^{+3}$
1. ion .[At.No. of Co= 27]
15. Write the IUPAC name of $[\text{Pt}(\text{NH}_3)_2\text{Cl}_2]$
16. Which is more basic $\text{La}(\text{OH})_3$ or $\text{Lu}(\text{OH})_3$? Why?
17. How much electricity in terms of Faraday is required to produce,
- i) 20 g of Ca from molten CaCl_2 ?
ii) 50 g of Al from Al_2O_3 ?
18. Explain the following terms with suitable example:
2. F-centres ii) Schottky defect
19. An element having bcc structure with a cell edge of 288pm. If the density of the element is 7.2g/cm^3 , what is atomic mass of the element?
- iii) Define the following terms:
- i) Co-enzymes
ii) Mutation in biomolecules
iii) Nucleotides.
20. Write one chemical equation to exemplify the following reactions:
- b) Carbylamine reaction
c) Hofmann bromamide reaction.
21. Give chemical test to distinguish between phenol and ethanol in seemingly similar conditions.
22. Write the reaction equation for what happens when tertiary butyl alcohol is heated with reduced copper at about 573K
23. Complete the following reaction equations:

- i) $\text{Cr}_2\text{O}_7^{2-} + \text{Sn}^{+2} + \text{H}^+ \rightarrow$
ii) $\text{MnO}_4^- + \text{Fe}^{+2} + \text{H}^+ \rightarrow$
24. Assign reasons for the following observations:
i) Hydrogen iodide is a stronger acid than hydrogen fluoride in aqueous solution.
ii) The basic character among the hydrides of Group 15 elements decreases with increasing atomic numbers.
iii) Draw the structural formula for XeOF_4
25. Outline the principles of refining of metals by the following methods:
i) Zone refining ii) Electrolytic refining iii) Vapour phase refining
- a) Why is alum added to water for purification?
b) Explain why deltas are formed where river and sea water meet.
c) Describe the preparation of a colloidal solution of arsenous sulphide in water
26. Write the Nernst equation. Calculate e.m.f of the following cell at 25°C :
27. $\text{Pt(s)}/\text{Br}_2(\text{l})/\text{Br}^-(0.010\text{M})/\text{H}^+(0.030\text{M})/\text{H}_2(1\text{ bar})/\text{Pt(s)}$ [Given: $E^\circ \text{Br}_2/\text{Br}^- = +1.08\text{V}$]
28. At 300K , 36g of glucose ($\text{C}_6\text{H}_{12}\text{O}_6$) present per liter in its aqueous solution has an osmotic pressure of 4.98 bars . If the osmotic pressure of another solution of glucose is 1.52 bar at the same temperature, what would be its concentration?
- a) An organic compound with the molecular formula $\text{C}_9\text{H}_{10}\text{O}$ forms 2,4-DNP derivative, reduces Tollen's reagent and undergoes Cannizzaro reaction. On vigorous oxidation, it gives 1,2-benzene dicarboxylic acid. Identify the compound.
29. Write the steps and conditions involved in the following conversions:
i) Acetophenone to 2-phenyl-2-butanol.
ii) Propene to acetone.
30. Account for the following:
a) PH_3 is a weaker base than NH_3 .
b) SF_6 exists but SH_6 does not.
c) ClF_3 exists but FCl_3 does not.
d) H_3PO_3 is diprotic acid.
e) ICl more reactive than I_2
- a) Mention the factors that affect rate of a chemical reaction.
b) A first order reaction takes 69.3 minutes for 50% completion. Set up an equation for determining the time required for 80% completion of this solution.

- c) Show that in a first order reaction, time required for completion of 99.9% is 10 times of half-life ($t_{1/2}$) of the reaction.

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