

KENDRIYA VIDYALAYA No.1 AFS TAMBARAM
PRACTICE PAPER

Class XII

Chemistry

Marks 70

Time 3 hrs

Answer all questions

Q Nos 1 -5 are very short answer questions and carry 1 mark each

Q Nos 6-10 are short answer questions and carry 2 marks each

Q Nos 11 -22 are short answer questions and carry 3 marks each

Q No 23 is a value based question and carry 4 marks

Q Nos 24 -26 are long answer questions and carry 5 marks each

1. What are stoichiometric compounds ?
2. Which point defect in its crystal decreases the density of the solid ?
3. How is pure nitrogen prepared ? Show with the help of chemical equation
4. Mention two uses of nitric acid .
5. Write the value of van't Hoff factor for potassium chloride
6. Define coordination compounds Also give an example
7. Draw the shape of dichromate ion .
8. What is the basicity of H_3PO_4 ? Illustrate with the help of structure
9. Find the Charge required to convert 3 moles of Ca^{2+} to Ca
(1 Faraday = 96500 coulombs)
10. Explain the following terms
i) molecularity ii) instantaneous rate of a reaction
or

Give one example each for first and second order reaction

11. For the reaction $\text{A} \rightarrow \text{B}$ the rate of the reaction becomes 8 times when the concentration of A is increased 2 times. What is the order of the reaction ?

12. Do the following conversions

- i) Benzamide to aniline
 - ii) Propanamide to ethanamine
 - iii) Nitrobenzene to benzene diazonium chloride
- or

Write chemical equations involved when $\text{C}_2\text{H}_5\text{NH}_2$ is treated with

i) CH_3COCl /pyridine

ii) $\text{C}_6\text{H}_5\text{SO}_2\text{Cl}$

iii) $\text{CHCl}_3 + \text{KOH}$

13. Aluminium has fcc unit cell. Density = 5.55 g/cc , atomic mass = 27u. Find its atomic radius ?

14. How will you prepare a) BrF_5 b) XeF_2 c) XeF_4

15. Draw diagrams to show splitting of degenerate d-orbitals in tetrahedral field . Also give examples for low spin and high spin complexes

16. Arrange the following in the order of increasing reducing power . Also write reason for the same H_2O , H_2S , H_2Se , H_2Po

17. Explain collectors and depressant with examples

18. Briefly explain the extraction of aluminium from bauxite ore .

19. State Hardy –Schulze rule. Arrange in the order of flocculating power Ba^{2+} , Al^{3+} , Na^+

20. What are non essential amino acids . Give two examples

21. Write the monomers of

- a) i) Nylon-6, ii) Buna -N
- b) State a use of PHBV

22. For a first order reaction, show that the time required for 99% completion is twice the time required for the completion of 90% of the reaction.

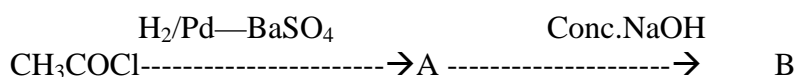
23. Ethanol for industrial use is to be denatured. Ethanol is denatured by adding pyridine and copper sulphate. Excessive use of alcohol is harmful to health.

a) Why ethanol is to be denatured ?

b) What is the function of pyridine in ethanol while denaturing ?

c) What is the function of copper sulphate in ethanol while denaturing ?

24. a) Write the structures of A, B in the following reaction



b) Distinguish between the following

i) Ethyl amine and diethyl amine

ii) Ethanoic acid and phenol

iii) Propanol and ethanol

or

How will you distinguish between primary, secondary and tertiary alcohols by chemical tests. Describe with the help of equations

25. a) The conductivity of 0.1 mol L^{-1} solution of NaCl is $1.06 \times 10^{-2} \text{ S cm}^{-1}$. Calculate its Molar conductivity and degree of dissociation

Given $\Lambda_0(\text{Na}^+) = 50.1 \text{ S cm}^2 \text{ mol}^{-1}$ and $\Lambda_0(\text{Cl}^-) = 76.5 \text{ S cm}^2 \text{ mol}^{-1}$

b) Describe the functioning of fuel cell

or

Derive Nernst equation for Daniel cell. Also write the advantage and disadvantage of dry cell.

26.) a) Give reason

i) Transition metals are used as catalysts

ii) Mn^{3+} is a strong oxidising agent

iii) Actinides show irregularities in their electronic configurations

b) Write two balanced equations to show the oxidising property of potassium permanganate

or

What is lanthanide contraction ? What are its consequences

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Q Nos 24 -26 are long answer questions and carry 5 marks each

1. What are nonstoichiometric compounds ?
2. Which point defect in its crystal increases the density of the solid ?
3. How is O_3 prepared ? Show with the help of chemical equation
4. Mention 2 areas in which H_2SO_4 plays important role
5. Write the value of van't Hoff factor for acetic acid in benzene
6. Define ambidentate ligands . Also give an example
7. Draw the shape of chromate ion .
8. What is the basicity of H_3PO_3 ? Illustrate with the help of structure
9. Find the Charge required to convert 3mole of Al^{3+} to Al
(1Faraday = 96500 coulombs)
10. Explain the following terms
 - i) order of reaction
 - ii) activation energy of a reactionor

List two factors on which rate of a chemical reaction depends

11. For the reaction $A \rightarrow B$ the rate of the reaction becomes 27 times when the concentration of A is increased 3 times. What is the order of the reaction ?
12. Do the following conversions
 - i) Aniline to benzene
 - ii) Ethanamide to methanamine
 - iii) Nitrobenzene to anilineor

Explain the following with examples

- a) Cannizzaro's reaction b) Rosenmund reduction c) Aldol condensation

13. Nb has bcc unit cell. Density = 8.55 g/cc , atomic mass = 93u. Find its atomic radius ?

14. How will you prepare a) Nitrogen dioxide b) XeO_3 c) XeF_6

15. Draw diagrams to show splitting of degenerate d-orbitals in an octahedral field . Also give examples for low spin and high spin complexes

16. Arrange the following in the order of increasing acid strength . Also write reason for the same H_2O , H_2S , H_2Se , H_2Po

17. Explain synergic effect and chelate ligand with examples

18. Briefly explain the extraction of copper from sulphide ore .

19. State Hardy -Schulze rule. Arrange in the order of flocculating power Ba^{2+} , Al^{3+} , Na^+

20. What are essential amino acids . Give two examples

21. Write the monomers of

a) i) Nylon-6,6 ii) Buna -S

b) State a use of PHBV

22. $A \rightarrow \text{Products}$.For this reaction $k = 4.5 \times 10^3$ at 10°C . $E_a = 60\text{kJ/mol}$. Find the temperature at which k becomes $1.5 \times 10^4 \text{ s}^{-1}$

23. Aspirin is a broad spectrum antibiotic. While buying medicines from a medical shop

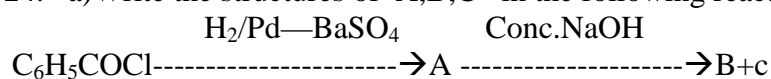
We should be careful. While consuming medicine also we should be careful.

a) What are the details that you will see after purchasing a medicine from the medical shop ?

b) We should not consume medicines as we like. Why ?

c) What is aspirin ? . Write its IUPAC name

24. a) Write the structures of A, B, C in the following reaction



b) Distinguish between the following

i) Pentan-2-one and pentan-3-one

ii) Benzoic acid and phenol

iii) Methanol and ethanol

or

Explain Hinsberg test with equations (for primary, secondary and tertiary amines)

25. a) The conductivity of 0.1mol L^{-1} solution of NaCl is $1.06 \times 10^{-2} \text{ S cm}^{-1}$. Calculate its Molar conductivity and degree of dissociation

Given $\Lambda_0(\text{Na}^+) = 50.1 \text{ S cm}^2 \text{ mol}^{-1}$ and $\Lambda_0(\text{Cl}^-) = 76.5 \text{ S cm}^2 \text{ mol}^{-1}$

b) What is the difference between primary and secondary battery

or

Explain the functioning of fuel cell with the help of diagram

26.) a) Give reason

i) Transition metals form coloured compounds.

ii) Cr^{2+} is a strong reducing agent

iii) Actinides show irregularities in their electronic configurations

b) Define lanthanide contraction . Write its consequences

or

Explain the variation of enthalpies of atomisation of transition metals with atomic number with the help of graph.