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VNR12C

Virudhunagar District
First Revision Exam, January - 2025

Standard 12
CHEMISTRY

Time: 3.00 Hrs. Marks: 70

PART - I

I. Answer all the questions. Choose the correct answer: 15×1=15

1) Which of the following is used for concentrating ore metallurgy?
a) Leaching b) Froth floatation c) Roasting d) Both (a) and (b)

2) $HCOOH + H_2SO_4 \longrightarrow CO+H_2SO_4.H_2O$ In a given reaction sulphuric acid is
a) Reducing agent b) Dehydrating agent
c) Oxidising agent d) Chlorinating agent

3) If the activation energy (Ea) of a reaction is zero, the value of the rate constant is
a) 0 b) A c) Ea d) $Ea/2$

4) i) H_3PO_2 is mono basic acid ii) H_2SO_4 is dibasic acid
iii) H_3PO_4 is monobasic acid iv) H_3PO_3 is tribasic acid
Correct statements are
a) i & iii b) ii & iv c) i & ii d) iii & iv

5) Inorganic benzene is
a) Borax b) Borazole c) Boric acid d) diborane

6) Which of the following is not SP^2 hybridised?
a) Graphite b) Graphene c) Fullerene d) dry ice

7) Which one of the following ions has the same number of unpaired electrons as present in V^{3+}?
a) Ti^{3+} b) Fe^{3+} c) Ni^{2+} d) Cr^{3+}

8) Which of the following affects the density of the crystal
a) Interstitial defect b) Frenkel defect
c) Schotky defect d) F-Centers

9) Choose the one which is correctly matched
a) cyanide leaching - copper b) ammonia leaching - iron
c) alkali leaching - silver d) acid leaching - lead sulphide

10) In calcium fluoxide having the flurite structure the co-ordination number of Ca^{2+} ion and F^- ion are
a) 4 and 2 b) 6 and 6 c) 8 and 4 d) 4 and 8

11) In a first order reaction x ⟶ y, if k is the rate constant and the initial concentration of the reactant x is 0.1M, then the half life is
a) $\frac{\log 2}{K}$ b) $\frac{0.693}{(0.1)K}$ c) $\frac{\ell n\ 2}{K}$ d) none of these

12) Dissociation constant of NH_4OH is 1.8×10^{-5} the hydrolysis constant of $NH_4C\ell$ would be
a) 1.8×10^{-19} b) 5.55×10^{-10} c) 5.55×10^{-5} d) 1.80×10^{-5}

13) In the following reaction $H-C\equiv C-H \xrightarrow[HgSO_4]{H_2SO_4} X$ (product), 'X' will not give
a) Tollens test b) Victor Meyer test
c) Iodoform test d) Fehling solution

14) Which one is not correctly matched?

Reducing agent		Reaction
a) Zn/Hg/Conc.HCl	–	Clemenson reduction
b) $LiAlH_4$	–	Wolf Kishner reduction
c) $Pd/BaSO_4$	–	Rosenmund reduction

15) In the following which one is strongest acid
a) 2-nitrophenol b) 4-chlorophenol c) 4-nitrophenol d) 3-nitrophenol

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PART - II

II. Answer any six questions. Q.No. 24 is compulsory: **6×2=12**

16) Write down the steps involved in extraction of crude metals from the concentrated ores.
17) Give the uses of potash alum.
18) Write the Ethyl borate test.
19) What is the hybridisation of Iodine in IF_7? Give its structure.
20) Cr^{2+} is strong reducing agent while Mn^{3+} is strong oxidising agent - Give reason.
21) Write short notes on - Schotky defect.
22) What are the limitations of Arrhenius concept?
23) What is Formalin. Give its use.
24) Find 'X' and 'Y' acetyl chloride $\xrightarrow[\text{ii) } H_3O^+]{\text{i) } CH_3MgBr} X \xrightarrow{\text{acidified } K_2Cr_2O_7} Y$

Part - III

III. Answer any six questions. Q.No. 33 is compulsory: **6×3=18**

25) Explain the following terms with suitable examples.
(i) Gangue (ii) Slag
26) Why HF is not stored in glass bottles?
27) Write a note on Fisher tropsch synthesis.
28) Write the differences between Lanthanoids and Actinoids.
29) Discuss about molecular crystals with types and examples.
30) Define solubility product.
31) Melting point of ethyl alcohol (351K) is higher than the melting point of diethyl ether (248 K). Give reason.
32) Explain the Williamson's Synthesis.
33) Aluminium crystallizes in a cubic close packed structure. Its metallic radius is 125 pm. Calculate the edge length of unit cell.

Part - IV

IV. Answer all the questions: **5×5=25**

34) a] i) Explain the froth floatation method.

(OR)

b] i) $B(OH)_3 + NH_3 \longrightarrow$ complete the reaction.
ii) How will you prepare potash alum?

35) a] Explain the mechanism of aldol condensation.

(OR)

b] i) Explain pseudo first order reaction with eg.
ii) Derive integrated rate law for a zero order reaction A $\longrightarrow$ product.

36) a] i) Define pH
ii) Derive Henderson - Hasselbalch equation.

(OR)

b] i) Define unit cell.
ii) Distinguish between hexagonal close packing and cubic close packing.

37) a] i) Give the differences between rate of a reaction and rate constant of a reaction.
ii) Compare the reaction of dil.HCl with powdered $CaCO_3$ and marble $CaCO_3$.

(OR)

b] i) Give the uses of Borax.
ii) $[Ti(H_2O)_6]^{3+}$ is coloured, while $[Sc(H_2O)_6]^{3+}$ is colourless - Explain.

38) a] i) Write the differences between alcohols and phenols.
ii) Write the tests for carboxylic acids.

(OR)

b] Write notes on:
(i) Perkin's reaction (ii) Knoevenagel reaction (iii) Benzoin condensation

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