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Tiruppur district
Second Revision Test - 2023Reg No.

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Marks : 70

Time : 3.00 hrs

17.2.23

+2 CHEMISTRY ☺

PART - I

15 x 1 = 15

- Answer all the questions. Choose the correct answer out of the following choices.
- Which of the following oxidation states is most common among the lanthanoids?
a) +2 b) +3 c) +4 d) +5
 - After 3 hours 1 kg of a radio active substance is disintegrated leaving behind 62.5 g of the substance then its half life period is.....
a) 30 minutes b) 45 minutes c) 60 minutes d) 120 minutes
 - H_2PO_4^- is the conjugate base of a) PO_4^{3-} b) P_2O_5 c) H_3PO_4 d) HPO_4^{2-}
 - Natural rubber has a) alternate cis-and trans-configuration b) random cis - and trans - configuration c) all cis- configuration d) all trans- configuration
 - Which of the following is not likely to act as the base? a) BF_3 b) PF_3 c) CO d) F⁻
 - Hair cream is a) gel b) emulsion c) solid SO1 d) sol
 - Which kind of isomerism is possible for a complex $[\text{CO}(\text{NH}_3)_4 \text{Br}_2]\text{Cl}$? a) geometrical and ionization b) geometrical and optical c) optical and ionization d) geometrical only
 - Which of the following observations from Ellingham diagram is not correct?
i) Oxygen gas is consumed during the formation of metal oxides which results in the increase in randomness ii) The graph for the formation of carbon monoxide is a straight line with negative slope. iii) As temperature decreases, generally ΔG value for the formation of metal oxide becomes less negative and becomes zero at a particular temperature iv) Due to phase transition there is a sudden change in the slope at a particular temperature for some metal oxides like MgO, HgO a) (i) & (ii) b) (i) & (iii) c) (i) & (iv) d) (iii) & (iv)
 - A solid (A) reacts with strong aqueous NaOH liberating a foul smelling gas (B) which spontaneously burn in air giving smoky rings. (A) and (B) are respectively.
a) P_4 (white) and H_2S b) P_4 (red) and PH_3 c) S_8 and H_2S d) P_4 (white) and PH_3
 - Which of the following electrolytic solution has the least specific conductance?
a) 0.2 N b) 0.2 N c) 0.002 N d) 2N
 - The correct ascending order of basic strength for alkyl-substituted amines in aqueous solution is a) $\text{R}_2\text{NH} > \text{RNH}_2 > \text{R}_3\text{N} > \text{NH}_3$ b) $\text{NH}_3 > \text{R}_3\text{N} > \text{RNH}_2 > \text{R}_2\text{NH}$ c) $\text{NH}_3 < \text{R}_3\text{N} < \text{RNH}_2 < \text{R}_2\text{NH}$ d) $\text{R}_2\text{NH} < \text{RNH}_2 < \text{R}_3\text{N} < \text{NH}_3$
 - One mole of an organic compound (A) with the formula $\text{C}_3\text{H}_8\text{O}$ reacts completely with two moles of HI to form X and Y. When Y is boiled with aqueous alkali it forms Z, Z answers the iodoform test. The compound (A) is a) propan-2-ol b) propan-1-ol c) ethoxyethane d) methoxyethane
 - Assertion (A) : Diamond is a hard polar molecular solid
Reason (R) : In diamond atoms are bound together in a three dimensional network entirely by covalent bonds. a) Both (A) & (R) are correct and (R) is the correct explanation of (A) b) Both (A) & (R) are correct but (R) is not the correct explanation of (A) c) (A) is correct but (R) is wrong d) (A) is wrong but (R) is correct
 - If one strand of the DNA has the sequence 'ATGCTTGA' then the sequence of complementary strand would be a) TCCGA ACT b) TACGA ACT c) TACGRAGT d) TACGTACT
 - The stability of +1 oxidation state decreases in the sequence
a) $\text{Al} < \text{Ga} < \text{In} < \text{Tl}$ b) $\text{In} < \text{Tl} < \text{Ga} < \text{Al}$ c) $\text{Tl} > \text{In} > \text{Ga} > \text{Al}$ d) $\text{Ga} > \text{In} > \text{Al} > \text{Tl}$

PART - II

Answer any 6 questions. Q.No. 24 is compulsory.

6 x 2 = 12

- Which type of ores can be concentrated by froth floatation method? Give two examples for

such ores.

17. What are Zeolites? Give their general formula.
18. Which is more stable Fe^{3+} (or) Fe^{2+} . Explain.
19. Write any four differences between crystalline solids and amorphous solids.
20. Write Arrhenius equation and explain the terms involved.
21. State Kohlraush law.
22. Suggest a suitable reagent to prepare a secondary alcohol with identical group using grignard reagent. Write the equation.
23. How do antiseptics differ from disinfectants?
24. Define equivalent conductance.

PART - III

Answer any 6 questions. Q.N.33 is compulsory.

6 x 3 = 18

25. Describe a method for refining nickel.
26. Complete the following reactions : i) $\text{NaCl} + \text{MnO}_2 + \text{H}_2\text{SO}_4 \rightarrow$ ii) $\text{Mg} + \text{HNO}_3 \rightarrow$ iii) $\text{XeF}_6 + \text{H}_2\text{O} \rightarrow$
27. Write the formula for the following coordination compounds.
i) Potassium hexacyanido ferrate (II) ii) Penta ammine nitrito - K - N-Cobalt (III) ion
iii) Sodium tetra fluorido di hydroxido chromate (III)
28. What is an elementary reaction? Give the differences between order and molecularity of a reaction.
29. Derive Henderson - Hasselbalch equation.
30. Explain intermediate compound formation theory of catalysis with an example.
31. How is phenol prepared from (i) chloro benzene (ii) isopropyl benzene
32. Give the differences between primary and secondary structure of proteins.
33. An organic compound (A) $\text{C}_3\text{H}_9\text{N}$ when treated with nitrous acid, gave an alcohol (B) and N_2 gas. (A) undergoes carbylamine reaction to give (C) which on reduction gave isopropyl methylamine. Identify the compound (A), (B), (C) and write the equations.

PART - IV

Answer all the questions.

5 x 5 = 25

34. a) i) Describe the role of cryolite in the extraction of aluminium and sodium cyanide in froth floatation. (2) (ii) What is inorganic benzene? How it is prepared? (3) (OR)
b) i) Give the uses of helium. (2) ii) Compare lanthanides and actinides. (3)
35. a) i) On the basis of VB theory explain the nature of bonding in $[\text{CO}(\text{C}_2\text{O}_4)_3]^{3-}$ (3)
ii) Write a short note on π -back bonding in metal carbonyls. (2) (OR)
b) (i) Calculate the percentage efficiency of packing in case of body centred cubic crystal. (3)
(ii) Write the rate law for the following reactions
a) A reaction that is 3/2 order in X and zero order in Y. b) A reaction that is second order in NO and first order in Br_2 . (2)
36. a) i) Define pH. Calculate the pH of 0.04 M HNO_3 solution. (3)
ii) Write any two tests to identify the two types of emulsion (2) (OR)
b) Write a note on i) Galvanic cell notation of Daniel cell (ii) Mercuric button cell (2 + 3)
37. a) i) Arrange the following in the increasing order of their boiling point and give a reason for your ordering. Butan-2-ol, Butan-1-ol, 2-methyl propan-2-ol (2)
ii) Explain the mechanism of aldol condensation. (3) (OR)
b) i) Amines are more basic than amides. Why? (2)
ii) Write the equation for the following reactions. (3) a) Hofmann's Bromamide reaction
b) Diazotisation c) Gomberg reaction
38. a) (i) How is Cinnamic acid prepared? (2) ii) How are hormones classified? (3) (OR)
b) Explain the mechanism of cleansing action of soaps. (5)