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2RM

SECOND REVISION TEST - 2023

12 - Std **CHEMISTRY**

7	1	8	7	7	1	8

Time : 3.00 Hrs Marks : 70

SECTION – I

Note: 1) Answer all the questions. 2) Choose the most suitable answer from the given four alternatives and write the option code and the corresponding answer. 15 X 1 = 15

1. In the electrolytic refining of copper, which one of the following is used as anode?
   a) Pure copper b) Impure copper c) Carbon rod d) Platinum electrode
2. In diborane, the number of electrons that accounts for banana bonds is
   a) six b) four c) two d) three
3. Among the following, which is the strongest oxidising agent?
   a) Cl_2 b) F_2 c) Br_2 d) I_2
4. Which of the following oxidation states is most common among the lanthanoids?
   a) 4 b) 2 c) 5 d) 3
5. How many geometrical isomers are possible for [Pt (Py) (NH_3) (Br) (Cl)]?
   a) 3 b) 4 c) 0 d) 15
6. The number of octahedral void(s) per atom present in a cubic close packed structure is a) 3 b) 2 c) 1 d) 4
7. The unit of rate constant for a first order reaction is
   a) mol $L^{-1}s^{-1}$ b) $Lmol^{-1}s^{-1}$ c) $L^2mol^{-2}s^{-1}$ d) s^{-1}
8. The aqueous solutions of sodium formate, anilinium chloride and potassium cyanide are respectively
   a) acidic, acidic, basic b) basic, acidic, basic c) basic, neutral, basic d) none of these
9. Among the following cells
   I) Leclanche cell II) Nickel – cadmium cell
   III) Lead storage battery IV) Mercury cell
   Primary cells are
   a) I and IV b) I and III c) III and IV d) II and III
10. Which one of the following statement is not correct.
    a) The value of equilibrium constant is changed in the presence of a catalyst in the reaction at equilibrium
    b) Enzymes catalyse mainly biochemical reactions.
    c) Coenzymes increase the catalytic activity of enzyme.
    d) Catalyst does not initiate any reaction.
11. ***Assertion:*** Phenol is more reactive than benzene towards electrophilic substitution reaction.
    Reason: In the case of phenol, the intermediate arenium ion is more stabilized by resonance.
    a) if both assertion and reason are true and reason is correct explanation of assertion.
    b) if 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.
12. Which one of the following reduces tollens reagent
    a) formic acid b) acetic acid c) benzophenone d) none of these
13. When aniline reacts with acetic anhydride the product formed is
    a) o – aminoacetophenone b) m – aminoacetophenone
    c) p – aminoacetophenone d) acetanilide
14. On hydrolysis of starch, we finally get
    a) glucose b) fructose c) both (a) and (b) d) sucrose
15. Nylon is an example of
    a) polyamide b) polythene c) polyester d) polysaccharide

SECTION – II

Answer any six questions and question number 20 is compulsory. 6X2=12

16. Describe the role of cryolite in the extraction of Aluminium.
17. What is Zeigler Natta catalyst? and what is its use?
$\left[CO(NH_3)_5 Cl\right]SO_4$ *and* $\left[CO(NH_3)_5 SO_4\right]Cl$
18. Give one test to differentiate
19. Calculate the number of atoms in the fcc unit cell.
20. K_{sp} of AgCl is 1.8×10^{-10}. Calculate molar solubility in 1M $AgNO_3$.
21. What is Tyndall effect?
22. State Saytzeff's rule?
23. Why amines are more basic than amides?
24. Name the vitamins whose deficiency cause i) rickets ii) scurvy.

SECTION – III

Answer any six questions and question number 28 is compulsory. 6x3=18

25. Give the uses of Borax.
26. Write the Hume – Rothery rule for alloy formation.
27. Why tetrahedral complexes do not exhibit geometrical isomerism?
28. Identify the conjugate acid base pair for the following reaction in aqueous solution.
i) $HS_{(aq)} + HF \rightleftharpoons F_{(aq)} + H_2S_{(aq)}$. *ii)* $HPO_4^{2-} + SO_3^{2-} \rightleftharpoons PO_4^{3-} + HSO_3^-$.
29. A copper electrode is dipped in 0.1M copper sulphate solution at 25°C. Calculate the electrode potential of copper. [Given $E^0_{Cu^{2+}|Cu} = 0.34V$].
30. What is promoters? Give an example.
31. How will you convert phenol into phenolphthalein?
32. Describe the mechanism of Aldol condensation.
33. Explain the mechanism of cleansing action of soaps.

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SECTION – IV

Answer all the questions. 5 x 5 = 25

34. (i) Give the limitations of Ellingham diagram. (2)
(ii) Explain the Froth Flotation method for concentration of ore. (3)

(OR)

(iii) Write a short note on anamolous properties of the first element of p – block. (2)
(iv) How will you identify borate radical? (3)

35. (i) What is inert pair effect? (2)
(ii) What are the properties of inter halogen compounds? (any 3) (3)

(OR)

Write the oxidation state, coordination number, nature of ligand, magnetic property and $K_4\left[Mn(CN)_6\right]$ electronic configuration in octahedral crystal field for the complex. (5)

36. (i) What is meant by the term "Coordination number"? (2)
(ii) Give any three characterestics of ionic crystal. (3)
(OR) (i) Define pH. (2)
(ii) Derive Henderson equation. (3)

37. (i) Write a note on sacrificial protection. (2)
(ii) State Faraday's Laws of electrolysis. (3)
(OR) Differentiate physisorption and chemisorption (any 5) (5)

38. Write short notes on the following.
a) Gabriel phthalimide synthesis b) Coupling reaction. (5)
(OR) (i) Write a note on vulcanization of rubber. (2)
(ii) Give any three differences between DNA and RNA. (3)