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Melacauvery - Kumbakonam - Thanjavur District
(29.11.24)

SECOND MID TERM TEST - 2024
CHEMISTRY

12- STD

TOTAL: 35 MARKS

TIME: 1.30 HOURS

PART – I

10X1=10

I. ANSWER ALL THE QUESTIONS.

1. Crystal field stabilization energy for high spin d^5 octahedral complex is ....
   a) $-0.6\,\Delta_0$ b) 0   c) 2 $(P-\Delta_0)$ d) $2(P+\Delta_0)$

2. Which kind of isomerism is possible for a complex $[CO(NH_3)_4 Br_2] Cl$
   a) Geometrical and ionization   b) geometrical and optical   c) optical and ionization   d) geometrical only.

3. Which complex is used as antitumor drug in cancer treatment
   a) Ca – EDTA   b) sodium ditho sulphato argentate (I)   c) Cis-Platin   d) trans-platin

4. While charging lead storage battery
   a) $PbSO_4$ on cathode is reduced to Pb   b) $PbSO_4$ on anode is oxidised to PbO_2
   c) $PbSO_4$ on anode is reduced to Pb   d) $PbSO_4$ on cathode is Oxidised to Pb

5. The equivalent conductance of M/36 Solution of a Weak monobasic acid is $6\,mhocm^2\,equivalent^{-1}$ and at infinite dilution is $400\,mhocm^2\,equivalent^{-1}$. Degree of dissociation of this acid is ......
   a) 1.25×10^{-6} b) 6.25×10^{-6} c) 1.5×10^{-2} d) 6.25×10^{-5}

6. During electrolysis of molten sodium chloride the time required to produce 0.1 mole of chlorine gas using a current of 3A is..............
   A) 55 minutes   b) 107.2 minutes   c) 220 minutes   d) 330 minutes

7. Statement: To stop bleeding from an injury, ferric chloride can be applied. Which comment above the statement is justified.
   a) It is not true, ferric chloride is a poison.
   b) It is true, Fe^{3+} ions coagulate blood which is a negatively charged sol.
   c) It is not true, ferric chloride is ionic and gets into the blood stream.
   d) It is true, coagulation takes place because of negatively charged sol with Cl^-

8. Smoke is a colloidal solution of
   a) solid in gas   b) gas in solid   c) liquid in gas   d) gas in liquid

9. Which of the following is a co-Polymer?
   a) orlon   b) PVC   c) Teflon   d) PHBV

10. Drug that bind to the receptor site and inhibit its natural function are called.
    a) antagonists   b) agonists   c) enzymes   d) molecular targets.

PART – II

3X2=6

II. ANSWER ANY THREE OF THE FOLLOWING QUESTIONS Q.No. 16 is COMPULSORY.

11. What are the limitations of VB theory
12. Write a note an sacrificial protection.
13. Peptising agent is added to convert precipitate into colloidal solution. Explain with an example.
14. What are food preservatives? Give Example.
15. How is terylene prepared?
16. Ionic conductance at infinite dilution of Al^{3+} and SO_4^{2-} are 189 and 160 $mho\,cm^2\,equiv^{-1}$. Calculate the molar conductance of the electrolyte $Al_2(SO_4)_3$ at infinite dilution.

PART – III

3X3=9

III. ANSWER ANY THREE OF THE FOLLOWING QUESTIONS. Q.No. 22 is COMPULSORY.

17. In a octahedral crystal field, draw the figure to show splitting of d-orbitals.
18. State Kohlrausch law.
19. Differentiate physiorption and chemisorption.
20. What is flocculation value?
21. How do antiseptic differ from disinfectant?
22. In the complex Identify the following. $[CO(NH_3)_4 Cl_2] Cl$
    (i) Central metal ion   ii) Ligands   iii) IUPAC name

PART – IV

2X5=10

IV. ANSWER ALL THE FOLLOWING QUESTIONS.

23. a. Write the Postulates of Werner's theory.
    b. Derive an expression for Nernst equation.   **(OR)**

24. a. i) Describe adsorption theory of Catalysis (3)
    ii) Write a note on electro osmosis (2)   **(OR)**
    b. Explain the mechanism of cleansing action of soap and detergents.

TTK-12-CHEM-EM-SINGLE