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**SAKTHI MATRIC HR. SEC. SCHOOL.KANIYAMOOR**

MODEL ANNUAL EXAM-6

CLASS : XII E/M

SUBJECT : Chemistry

Time: 3.00HRS

Marks: 70

**I CHOOSE THE CORRECT ANSWER:****15\*1=15**

- 1.The compound that is used in nuclear reactors as protective shields and control rods is
  - a) Metal carbonates
  - b) metal oxides
  - c) Metal borides
  - d) metal carbide
- 2.Assertion : bond dissociation energy of fluorine is greater than chlorine gas  
Reason: chlorine has more electronic repulsion than fluorine
  - a) both assertion and reason are false.
  - b) assertion is true but reason is false
  - c) if both assertion and reason are true but reason is not the correct explanation of assertion.
  - d) if both assertion and reason are true and reason is the correct explanation of assertion.
- 3.The catalytic behaviour of transition metals and their compounds is ascribed mainly due to
  - a) their magnetic behaviour
  - b) their unfilled d orbitals
  - c) their ability to adopt variable oxidation states
  - d) their chemical reactivity
4. Which of the following is an analgesic?
  - a) Penicillin
  - b) Chloromycetin
  - c) Streptomycin
  - d) Aspirin
5. Sudden change in the slope at a particular temperature for some metal oxide is.....
  - a) Phase transition
  - b) Melting
  - c) Evaporation
  - d) all the above
6. Fac-mer isomerism is shown by
  - a)  $[\text{Co}(\text{en})_3]^{3+}$
  - b)  $[\text{Co}(\text{NH}_3)_4\text{Cl}_2]^+$
  - c)  $[\text{Co}(\text{NH}_3)_3\text{Cl}_3]$
  - d)  $[\text{Co}(\text{NH}_3)_5\text{Cl}]\text{SO}_4$
7. The ionic radii of  $\text{A}^+$  and  $\text{B}^-$  are  $0.98 \times 10^{10}\text{m}$  and  $1.81 \times 10^{10}\text{m}$ . The coordination number of each ion in
  - a) 8
  - b) 2
  - c) 4
  - d) 6
8. If 75% of a first order reaction was completed in 60 minutes, 50% of the same reaction under the same conditions would be completed in
  - a) 20 minutes
  - b) 75 minutes
  - c) 35 minutes
  - d) 30 minutes
9. Which of the following electrolytic solution has the least specific conductance
  - a) 2N
  - b) 0.02N
  - c) 0.002N
  - d) 0.2N
10. Fog is colloidal solution of
  - a) liquid in gas
  - b) gas in gas
  - c) solid in gas
  - d) gas in liquid
11. Which one of the following is the strongest acid
  - a) 2-nitrophenol
  - b) 4-chlorophenol
  - c) 3-nitrophenol
  - d) 4-nitrophenol
12. In which of the following reactions new carbon-carbon bond is not formed?
  - a) Aldol condensation
  - b) Friedel craft reaction
  - c) Wolf kishner reduction
  - d) Kolbe's reaction
13. Assertion : Acetamide on reaction with KOH and bromine gives acetic acid  
Reason : Bromine catalyses hydrolysis of acetamide.
  - a) both assertion and reason are false.
  - b) assertion is true but reason is false
  - c) if both assertion and reason are true but reason is not the correct explanation of assertion.
  - d) if both assertion and reason are true and reason is the correct explanation of assertion.
14. Which of the following amino acids are achiral?
  - a) Alanine
  - b) Glycine
  - c) Proline
  - d) Leucine
15. Ionic product  $> K_{sp}$ , no precipitation and the solution is
  - a) Saturated
  - b) Unsaturated
  - c) Super Saturated
  - d) Equilibrium

**II ANSWER ANY SIX QUESTIONS AND QUESTION NO: 24 IS COMPULSORY****6\*2=12**

16. Give the basic requirement for vapour refining.
17. What is inert pair effect.
18. Why tetrahedral ( $T_d$ ) complex do not Geometrical isomerism.
19. Write a note on Arrhenius equation.
20. State Kohlraush's Law?
21. How the following conversions are effected?
  - i) Phenol  $\rightarrow$  P-Hydroxy azo benzene (Coupling)
  - ii) Ethane nitrile  $\rightarrow$  Ethanamine (Mendius)

22. Write the Zwitter ion structure of Alanine?

23. Write short notes on Popper's rule.

24. In the complex  $[\text{Co}(\text{NH}_3)_5 \text{Cl}]^{2+}$  identify the following.

- a) CMI      b) ligand      c) coordination number      d) Geometry      e) IUPAC name

**III ANSWER ANY SIX QUESTIONS AND QUESTION NO: 33 IS COMPULSORY**

**6\*3=18**

25. Give the uses of Borax?

26. What are actinides? Give 3 ex?

27. Give any three characteristics of ionic crystal?

28. Define solubility product.

29. Difference between sol and gel.

30. Write a note on Friedel-Crafts method of aceto phenone and benzo phenone?

31. Write a note on Gabriel phthalimide synthesis.

32. List out the advantages of food additives

33. An organic compound (A) of molecular formula is  $\text{C}_6\text{H}_6\text{O}$  on treatment with Benzene diazonium chloride gives (B) Dye. (A) on reaction with  $\text{K}_2\text{Cr}_2\text{O}_7$  gives (C) of molecular formula  $(\text{C}_6\text{H}_4\text{O}_2)$ . (A) on reaction with hydrogen in presence of nickel gives (D) Identify A, B, C and D with necessary reaction.

**IV ANSWER ALL THE QUESTIONS:**

**5\*5=25**

34. a) Write & Short note on Electro chemical principles of metallurgy.(5)

(OR)

b) Explain the structure of Ammonia?(2)

c) Explain the properties of Inter halogen compounds.(3)

35. a) Describe the position of Lanthanides and Actinides in the periodic table.(5)

(OR)

b)  $[\text{Fe}(\text{CN})_6]^{4-}$  Explain low spin or high spin complex is favoured using CFT.(5)

36. a) Explain 1<sup>st</sup> order graphical method (3)

b) What is elementary reaction(2)

(OR)

c) Derive Henderson- Hasselbalch equation.(3)

d) Explain the  $\text{H}_2\text{-O}_2$  fuel cell.(2)

37. a) Explain Saytzeff's rule.(5)

(OR)

b) Name the method to deduce the charge of the sol particle. Explain it with a neat diagram.(5)

38. a) Aniline does not undergo Friedel-Crafts reaction?(2)

b) Write a note on reduction of nitro benzene under different conditions.(3)

(OR)

c) An organic compound (A) of molecular formula is  $\text{C}_7\text{H}_6\text{O}$  has bitter almond smell with ammonia (A) gives

(B)  $\text{C}_{21}\text{H}_{18}\text{N}_2$  with aqueous alcoholic KCN (A) gives (C)  $\text{C}_{14}\text{H}_{12}\text{O}_2$  With aromatic tertiary amine (A) gives

(D)  $\text{C}_{23}\text{H}_{26}\text{N}_2$ . Identify A, B, C and D with necessary reaction.(5)

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