Reg No:

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SAKTHI MATRIC HR. SEC. SCHOOL.KANIYAMOOR
MODEL ANNUAL EXAM-10

CLASS : XII E/M   Time: 3.00HRS
SUBJECT : Chemistry   Marks: 70

I CHOOSE THE CORRECT ANSWER: 15*1=15

1. Bauxite has the composition
   a) $Al_2O_3 . nH_2O$ b) $Al(OH)_3nH_2O$ c) $Fe_2O_3.2H_2O$ d) None of these

2. For a first order reaction, the rate constant is 6.909 min^{-1} the time for 75% conversion in minutes is
   a) $\left(\frac{3}{2}\right) \log 2$ b) $\left(\frac{2}{3}\right) log \left(\frac{4}{3}\right)$ c) $\left(\frac{3}{2}\right) log \left(\frac{3}{4}\right)$ d) $\left(\frac{2}{3}\right) \log 2$

3. Which of the following metals has the largest abundance in the earth's crust?
   a) Sodium   b) Calcium   c) Magnesium   d) Aluminium

4. Assertion : pure iron when heated in dry air is converted with a layer of rust.
   Reason : Rust has the composition **Fe_3O_4**
   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.

5. When phenol is distilled with Zn dust it gives….
   a) Benzaldehyde   b) Benzene   c) Toluene   d) Benzoic acid

6. Which is true regarding nitrogen?
   a) least electronegative element   b) has low ionisation enthalpy than oxygen
   c) d- orbitals available   d) ability to form pπ-pπ bonds with itself

7. 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) $2(P + \Delta_0)$

8. If the solubility product of lead iodide is 3.2×10^{-8} , its solubility will be
   a) $1.6 \times 10^{-5}M$ b) $4 \times 10^{-4}M$ c) $2 \times 10^{-3}M$ d) $1.8 \times 10^{-5}M$

9. Nitrobenzene on reaction with Con HNO_3 / H_2SO_4 at $80-100^0C$ forms which one of the following products?
   a) 1,4 – dinitrobenzene   b) 2,4,6 – tirnitrobenzene
   c) 1,3 – dinitrobenzene   d) 1,2 – dinitrobenzene

10. The reactivity order of acid derivatives.
    a) Acid halide> Acid anhydride> Esters > Acid amides
    b) Acid amides> Acid anhydride> Esters > Acid halide
    c) Acid halide> Acid amidese> Esters > Acid anhydride
    d) Acid halide> Acid anhydride> Acid amides >Esters

11. Which one of the following is an example for homogeneous catalysis?
    a) manufacture of ammonia by Haber's process   b) manufacture of sulphuric acid by contact process
    c) Hydrolysis of sucrose in presence of dil.HCl   d) Hydrogenation of oil

12. Williamson synthesis of preparing dimethyl ether is a / an /
    a) S_N2 reactions   b) S_N1 reaction
    c) electrophilic addition   d) electrophilic substitution

13. Among the following the achiral amino acid is
    a) 2-ethylalanine   b) 2-hydroxymethylserine
    c) 2-methylglycine   d) Tryptophan

14. Assertion: 2-methyl-1,3-butadiene is the monomer of natural rubber
    Reason: Natural rubber is formed through anionic addition polymerisation.
    a) if both assertion and reason are true but reason is not the correct explanation of assertion
    b) If both assertion and reason are true and reason is the correct explanation of assertion.
    c) both assertion and reason are false.   d) assertion is true but reason is false.

15. The arrangement of crystallographic axes and angles in hexagonal system is…..
    a) $a = b \neq c$ and $\alpha = \beta = 90^0\ \gamma = 120^0$ b) $a = b \neq c$ and $\alpha = \beta = \gamma \neq 90^0$
    c) $a = b \neq c$ and $\alpha = \beta = \gamma = 90^0$ d) $a = b \neq c$ and $\alpha \neq \beta \neq \gamma = 90^0$

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

16. Give the structure of CO and CO_2

17. Classify the following elements in to d and f block Elements
    i) tungsten   ii) ruthenium   iii) promethium   iv) Einsteinium

18. Draw the all possible Geometrical isomers for the complex [CO (en) Cl_2]$^+$ and identify optically active

19. Define electro chemical equivalent and its units.

20. 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

21. How are benzoic acid prepared from Toluene

22. Write a note on Denaturation of proteins?

23. Write the structure of Aspirin and paracetamol.

24. A solution of silver nitrate is electrolysed for 30 minutes with the current of 2 amperes. Calculate the mass of silver deposited at the cathode.

III ANSWER ANY SIX QUESTIONS AND QUESTION NO: 33 IS COMPULSORY   6*3=18

25. Give the limitation of Ellingham diagram.

26. Give two equation to illustrate the chemical behaviour of phosphine.

27. If the radius ratio of the compound is between 0.155 to 0.225. Find out the coordination number and the structure of compound.

28. Write the PH of the following……. a)vinegar   b)black coffee   c)baking soda   d)urine

29. What is Brownian moment?

30. How the following conversions are effected?
    i) Phenol $\rightarrow$ Salicylaldehyde   ii) Phenol $\rightarrow$ Phenolphthalein   iii) Glycol $\rightarrow$ 1,4 Dioxane

31. Write a note on Sand meyer's and Gatterman reaction.

32. Write a note on Co- polymer?

33. Calculate the P^H of $1.5 * 10^{-3} M$ solution of $Ba(OH)_2$

IV ANSWER ALL THE QUESTIONS: 5*5=25

34. a) Explain froth flotation, with diagram.(3)
    b) Write a note van-arkel method.(2)
                    (OR)
    c) Why HF is not stored in silca or glass bottle?(2)
    d) Describe Structure of diborane.(3)

35. a) Describe the preparation of potassium dichromate. ($K_2Cr_2O_7$) (3)
    b) What are inner transition elements.(2)
                    (OR)
    c) Based on VB theory [Cr $(NH_3)_6$]$^{3+}$ paramagnetic while [Ni $(CN)_4$]$^{2-}$ is Diamagnetic.(5)

36. a) Explain pseudo 1st order reaction? Give example. (3)
    b) Define Buffer Solution? Give an example. (2)
                    (OR)
    b) Derive an expression for Ostwald's dilution law.(3)
    c) Explain the mercury button cell.(2)

37. a) Explain Adsorption theory of catalysis.(3)
    b) Difference between homogeneous and heterogeneous catalysis?(2)
                    (OR)
    c) Explain victor Meyer's test.(3)
    d) What is Metamerism? Give an example? (2)

38. a) Explain the mechanism of cleansing action of oaps and detergents.(5)
                    (OR)
    b)Explain the structure of Fructose.(5)

"YESTERDAY IS NOT OURS TO RECOVER, BUT TOMORROW IS OURS TO WIN OR LOSE.".
                              R.RAMALINGAM,M.SC,M.Ed,M.Phil
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