CHEMISTRY

BOOKS - SUNSTAR CHEMISTRY (KANNADA ENGLISH)

SUPPLEMENTARY EXAM QUESTION PAPER JULY - 2015

Part A

1. On what factor the value of colligative property depends?

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2. Give an example for liquid solution in which solute gas.

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3. How many Coulombs of electricity required to oxidise one mole of Al to Al^{3+} ?

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4. In a zero order reaction, the time taken to reduce the concentration of reactant from 50% to 25% is 30 minutes. What is the time required to reduce the concentration from 25% to 12.5%?

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5. Name the enzyme used in the inversion of cane sugar.

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6. Which metal is refined by Van-Arkel method ?

7. Name the noble gas which does not have general noble gas electronic configuration ns^2np^6.

8. $R - X + NaI \xrightarrow[\text{Acetone}]{\text{dry}} R - 1 + NaX$ what is the name of reaction ?

9. Which oxidising agent used in Etard-reaction ?

10. Write the general structure of Zwitter ion.

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Part B

1. Give any two differences between Frenkel and Schottky defects.

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2. State:

Kohlrausch's law

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3. State:

Faraday first law of electrolysis

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4. Calculate the half-life period of a first order reaction, if the rate constant of the reaction is $6.93 \times 10^{-3} S^{-1}$.

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5. Give reasons:

Actinoids show variable oxidation states.

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6. Give reasons:

Cerium (Ce) exhibits +4 oxidation state.

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7. Write the IUPAC name of major product formed in Friedel-Crafts acylation of anisole.

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8. Complete the reaction

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9. How are carboxylic acid prepared from Grigoard reagent?

10. What are antibiotics ? Give an example.

11. What is saponification ? Give the equation to form sodium stearate by this method.

Part C

1. Explain the reducing behaviour of carbon in the extraction of iron using Ellingham diagram.

2. Name the gas liberated when zinc reacts with dil. HNO_3

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3. Give reason:

PH_3 has lower boiling point than NH_3

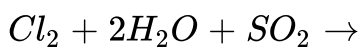▶ **Watch Video Solution**

4. Give reason:

Nitrogen is less reactive at room temperature.

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5. Give tbe principles involved in the manufacture of sulphuric acid by contact procces with equations :

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6. Complete the reaction

$$Cl_2 + 2H_2O + SO_2 \rightarrow$$

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7. Which halogen has highest electron affinity or electron gain enthalpy ?

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8. Give the structure of perchloric acid.

9. 3d-series elements exhibit variable oxidation states. Why ?

10. Calculate the magnetic moment of Mn^{2+} ion.

[Atomic number of M n = 25].

11. Describe the manufacture of potassium dichromate from chromite ore.

12. On the basis of VBT explain the hybridization, geometrical shape and magnetic property of $[CoF_6]^{3-}$, hexafluorido cobaltate (III) ion.

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13. What is the IUPAC name of $[Cr(NH_3)_3(H_2O)_3]Cl_3$?

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14. Give the facial (fac) and meridional (mer) isomeric structures of $[Co(NH_3)_3(NO_2)_3]$.

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Part D

1. Calculate the number of particles in Body Centered Cubic (BCC) lattice.

2. An element having atomic mass 107.9 u has FCC lattice. The edge length of its unit cell is 408.6 pm. Calculate density of the unit cell. $\left[\text{Given}, \ N_A = 6.022 \times 10^{23} \text{mol}^{-1}\right]$.

3. The boiling point of benzene is 353.23 K when 1.80 g of a non-volatile, non-ionising solute was dissolved in 90 g of benzene, the boiling point is raised to 354.11 K. Calculate the molar mass of solute.
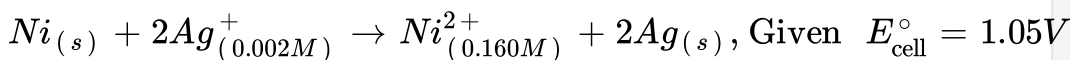
[Given K_b for benzene = 2.53 K kg mol^{-1}]

4. Write two differences between ideal and non-ideal solutions.

5. Draw a neat labeled diagram of Standard Hydrogen Electrode (SHE). Write its Half-Cell reaction.

6. Calculate the e.m.f. of the cell in which the following reaction takes place.

$$Ni_{(s)} + 2Ag^+_{(0.002M)} \rightarrow Ni^{2+}_{(0.160M)} + 2Ag_{(s)}, \text{Given } E^\circ_{\text{cell}} = 1.05V$$

7. Derive the integrated rate equation for rate constant of Zero order reaction.

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8. Show that the rate of first order reaction is doubled when concentration of the reactant is doubled.

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9. Give any two chracteristics of chemisorption

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10. What is meant by selectivity of a catalyst ?

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11. Define : i) Brownian movement ii) Tyndall effect.
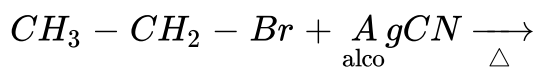
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12. Expain the SN^2 mechanism

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13. What is the reagent used in the conversion of alkyl halide into alkene?

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14. Complete the reaction.

$$CH_3 - CH_2 - Br + \underset{\text{alco}}{A}gCN \xrightarrow[\triangle]{}$$

15. What are enantiomers ?

16. Explain the Kolbe's reaction.

17. Complete the reactions :

18. Write the general equation of Williamson's ether synthesis

19. How would you prepare acetaldehyde from acetyl chloride? Name the reaction.

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20. Name the reagent used in the conversion of ketone to hydrocarbon. Name the reaction.

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21. Acetaldehyde does not undergo Cannizzaro reaction. Why ?

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22. Name the major product formed when nitrous acid is treated with

i) methylamine

ii) aniline at low temperature

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23. Explain the Hoffmann's bromamide reaction.

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24. Write the IUPAC name of $(CH_3)_2N - CH_2 - CH_3$.

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25. Give the Haworth structure of lactos.

26. What are hormones ? Give an example.

27. Which nitrogenous base present in DNA but not in RNA ?

28. How is neoprene prepared ?

29. What is bio-degradeable polymers ? Give example.

30. What is vulcanisation ?

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