CHEMISTRY

BOOKS - OSWAAL PUBLICATION

CHEMISTRY (KANNADA ENGLISH)

Solved paper 3

Exercise

1. Name the phenomenon involved: A raw mango in a concentrated salt solution loses

water and shrinks.

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2. How does the solubility of a solute vary with increase in temperature if the dissolution process is exothermic?

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3. What is the oxidising agent in mercury cell?

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4. Half life period of a reaction is directly proportional to initial concentration of the reactant. What is the order of this reaction?

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5. What should be the value of $1/n$ in the Freundlich adsorption isotherm, to show that adsorption can be independent of pressure ?

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6. An ore contains PbS and ZnS. Sodium cyanide is used as depressant. Which of these sulphide comes with the froth?

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7. Noble gases have vary low boiling point. Why?

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8. What is retention of configuration?

9. Name the type of carbonyl compound which on oxidation gives a carboxylic acid with lesser number of carbon atoms.

10. Name the element of group 17 present in Thyroxine hormone.

11. Mention the two crystal systems in which all edge lengths in their unit cell are the same.

12. A fuel cell generates a standard electrode potential of 0.7 V, involving 2 electrons in its cell reaction. Calculate the standard free energy change for the reaction. Given $F = 96487 \ C \ mol^{-1}$.

13. The ratio of rate constants of a reaction at 300K and 291K is 2. Calculate the energy of activation. $\left(\text{Given} \ R = 8.314 \text{JK}^{-1} \ \text{mol}^{-1} \right).$

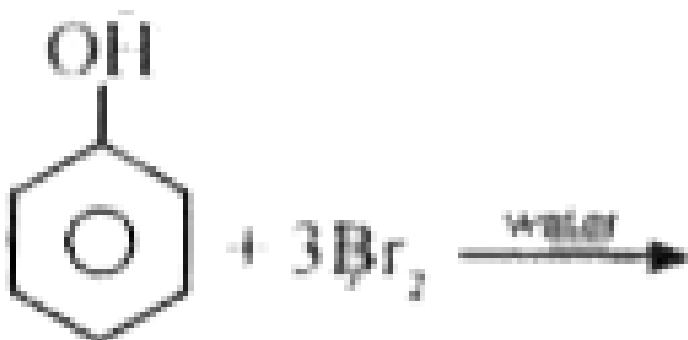**14.** Write the general electronic configuration of tripositive lanthanoid ion.

15. ii) Name the element of lanthanide with maximum paramagnetic property.

16. Complete the following :

i) $CH_3 - CH = CH - CH_2OH \xrightarrow{PCC}$

ii)

17. Complete the following:

$$\text{OH}\!\!-\!\!\bigcirc + 3Br_2 \xrightarrow{\text{water}}$$
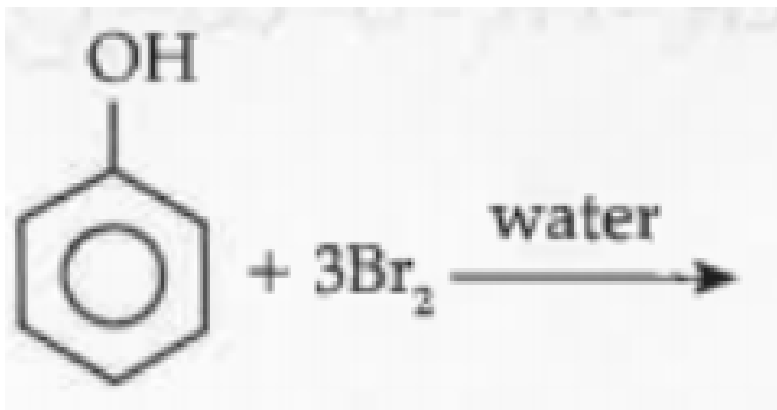
18. Write the chemical equation to convert acetic acid to monochloro acetic acid. Name this reaction.

19. a) What do we call a drug that binds to the receptor site and inhibit its natural function

20. What is the therapeutic use of iodoform?

21. Classify the following into cationic and anionic detergents: Sodium dodecylbenzene sulphonate and Cetyltrimethyammonium bromide.

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22. Name the reducing agent used in the extraction of zinc from zinc oxide. Write the chemical equation for this reaction.

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23. Write the composition of copper matte.

24. In the manufacture of nitric acid by Ostwald's process, Write

a) the catalyst for the oxidation of ammonia by atmospheric oxygen.

25. What is retention of configuration?

26. In the manufacture of nitric acid by Ostwald's process, Write

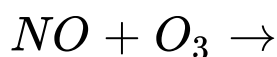the chemical equation for the dissolution of NO_2 in water.

27. In the manufacture of nitric acid by Ostwald's process, write the dehydrating agent used to convert 68% by mass of HNO_3 to 98%.
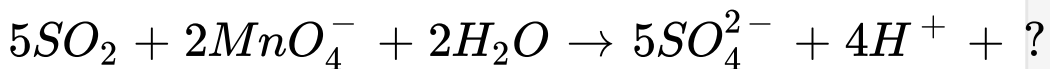
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28. Complete the following equation

$$NO + O_3 \rightarrow$$

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29. Complete the following equations :

(i)

$$5SO_2 + 2MnO_4^- + 2H_2O \rightarrow 5SO_4^{2-} + 4H^+ + ?$$

(ii) $SO_3 + $ Conc. $H_2SO_4 \rightarrow ?$

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30. Complete the following equations:

i) $NO + O_3 \rightarrow$

ii) $5SO_2 + 2MnO_4^- + 2H_2O \rightarrow$

iii) $C + 2H_2SO_4$ (conc.) $\rightarrow$
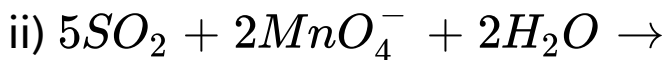
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31. a) Write the balanced chemical equation for the oxidation of acidified ferrous sulphate solution by chlorine.

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32. b) Give the composition of carnallite.

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33. Fluorine does not exhibit positive oxidation state. Why?

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34. Why $VO^+ \_ 2$ has lesser oxidizing power than $Cr_2O^{2-} \_ 7$?

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35. What is the oxidation state of nickel in $Ni(CO)_4$?

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36. Write the unit for magnetic moment.

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37. Write the balanced chemical equation involved in the manufacture of potassium-

dichromate from chromite ore.

38. Explain the hybridisation, geometry and magnetic prpoperty of $\left[Co(NH_3)_6\right]^{3+}$ based on VBT.

39. Explain synergic effect in the formation of metal carbonyls.

40. Give an example of a Heteroleptic complex.

41. a) Calculate the packing efficiency of particles in a body centred cube.

42. b) Atoms of element B form hcp lattice and those of element A occupies $2/3^{rd}$ of tetrahedral voids. Calculate the formula of the compound formed by A and B.

43. 18g of glucose is dissolved in 1000g of water at 300K. At what temperature does this solution boil?(Kb for water is 0.52 K kg/mol.Molar mass of glucose is 180 g/mol, boiling point of water = 273.15 K)

44. What are the conditions of pressure and temperature under which solubility of carbon dioxide in water can be increased?

45. a) For the electrochemical cell represented as: $Cu_{(s)} \left| Cu^{2+}_{(aq)} \right| \left| Ag^{+}_{(aq)} \right| Ag_{(s)}$, write the half cell reaction that occurs at (i) anode (ii) cathode

46. a) For the electrochemical cell represented as: $Cu_{(s)} \big| Cu^{2+}_{(aq)} \big| \big| Ag^{+}_{(aq)} \big| Ag_{(s)}$, write the half cell reaction that occurs at (i) anode (ii) cathode

47. Write the relationship between equilibrium constant of the reaction and standard potential of the cell.

48. c) Resistance of a conductivity cell containing 0.1 M KCl solution is 100Ω. Cell constant of the cell is 1.29/cm. Calculate the conductivity of the solution at the same temperature.

49. Derive an expression for half life period of a first order reaction.

50. Explain the influence of a catalyst on rate of reaction.

51. c) For the reaction, $H_2 + I_2 \rightarrow 2HI$, the rate of disappearance of $H2$ is $1 \times 10^{-4} Ms^{-1}$. What is the rate of appearance of HI.

52. (a) Write any two characteristics of chemical adsorption.

(b) What is Brownian movement? What is the cause for it?

(c) What is homogeneous catalysis?

53. Write the difference between physisorption and chemisorption with respect to

i) type of attractive forces between adsorbate

and adsorbent

ii) number of layers of adsorption.

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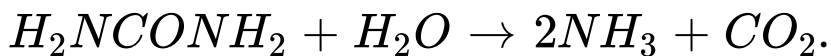
i) type of attractive forces between adsorbate and adsorbent

ii) number of layers of adsorption.

55. Name the enzyme that catalyses the reaction:

$$H_2NCONH_2 + H_2O \rightarrow 2NH_3 + CO_2.$$

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56. Write S_N1 mechanism for the hydrolysis of 2-Bromo-2-methyl propane. Why are S_N1 reactions generally carried in polar protic solvents?

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57. In the preparation of aryl halides by Sandmeyer's reaction, name the i) catalyst used ii) gas liberated.

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59. Write the chemical equation for the conversion of,

i) phenol to salicylaldehyde ii) Salicylic acid to aspirin.

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61. Explain Williamson's ether synthesis.

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62. Which class of alcohols do not readily form turbidity with Lucas reagent?

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63. Explain Clemmensen reduction with an example.

64. Name the reaction to obtain benzaldehyde from:

i) toluene ii) benzene iii) benzoyl chloride.

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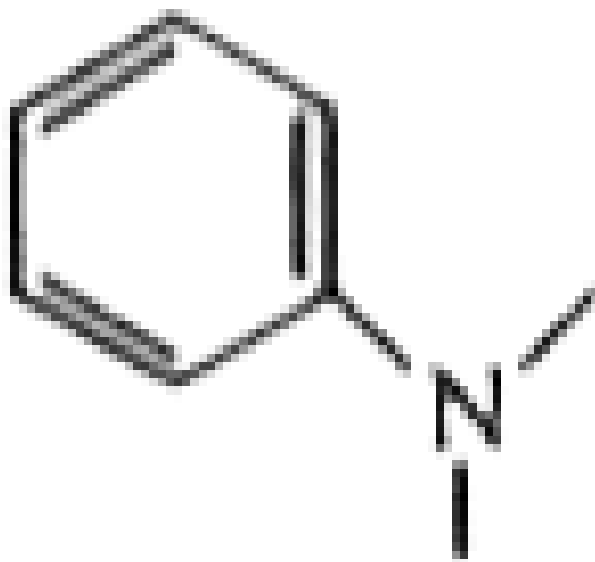**67.** How are primary amines prepared from nitro compounds? Write the equation.

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68. How does Hinsberg's reagent react with ethyl amine? Write the equation.

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69. Write the IUPAC name of

70. a) Name the water insoluble component of starch.

71. Name the type of linkage between two nucleotides in nucleic acid.

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72. With respect to proteins, what do you mean by

i) primary structure ii) denaturation

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74. What is addition polymerization? Give one example for a copolymer.

75. Write the name of monomers required to manufacture Buna-N rubber. Write the polymerization reaction for the same.

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76. What is Zeigler-Natta catalyst?

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