CHEMISTRY

BOOKS - KALYANI CHEMISTRY (ENGLISH)

SAMPLE PAPER 3 (CHEMISTRY)

Questions

1. Cubic close packing arrangement is also referred to as:

A. Hexagonal close packing

B. Face centered cubic

C. Body centered cubic

D. None of these

Answer: B

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2. The solubility of a gas varies directly with pressure of the gas is based upon :

1) Raoult's Law

2) Henry's law

3) Nernst's Distribution law

4) None of these

A. Raoult's law

B. Henry's law

C. Nernst's distribution law

D. None of these

Answer: B

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3. When zinc granule is dipped into copper sulphate solution, copper is precipitated because :

A. Both, copper and zinc have a positive reduction potential

B. Reduction potential of copper is higher than that of zinc

C. Reduction potential of zinc is higher than that of copper

D. Both, zinc and copper have a negative reduction potential

Answer: B

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4. When lime stone is heated, CO_2 is given off. The metallurgical operation is

A. Smelting

B. Reduction

C. Calcination

D. Roasting

Answer: C

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5. Which of the following reagent does not give O_2 gas on reaction with Ozone?

A. $KMnO_2$

B. $SnCl_2 / HCl$

C. $FeSO_4 / H_2SO_4$

D. PbS

Answer: B

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6. Which alkyl halides react most readily by nucleophilic substitution ?

A. CH_3CH_2Cl

B. CH_3CH_2l

C. CH_3CH_2Br

D. CH_3CH_2F

Answer: B

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7. Lucas test is used for distinction of :

A. Alcohols

B. Phenols

C. Alkyl halides

D. Aldehydes

Answer: A

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8. Sodium methoxide on heating with bromoethane gives_____

A. Methoxymethane

B. Methoxyethane

C. Ethoxyethane

D. Diethyl ether

Answer: B

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9. When acetone is treated with Grignard's reagent, followed by hydrolysis, the product formed is

A. Secondary alcohol

B. Tertiary alcohol

C. Primary alcohol

D. Aldehyde

Answer: B

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10. Which one absorbs U.V. radiation in stratosphere?

A. CO_2

B. N_2

C. O_3

D. H_2

Answer: C

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11. Which one of the following is an oxide ore ?

A. Malachite

B. Copper glance

C. Haematite

D. Zinc blende

Answer: C

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12. The cell reaction is spontaneous or feasible when e.m.f. of the cell is

A. Negative

B. Positive

C. Zero

D. Either positive or negative

Answer: B

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13. The molal elevation constant is the ratio of the elevation in boiling point to

A. Molarity

B. Molality

C. Mole fraction of solute

D. Mole fraction of solvent

Answer: B

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14. In a crystal, the atoms are located at the position of .... potential energy:

A. Maximum

B. Minimum P.E.

C. Zero P.E.

D. Infinite P.E.

Answer: B

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15. Designation of the pattern as AB, AB, AB..... etc., of successive vertical layers of identical atoms gives the arrangement called as :

A. Hexagonal close packing (hcp)

B. Cubic close packing (ccp)

C. Face centered cubic (fcc)

D. Body centered cubic (bcc)

Answer: A

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16. Which of the following is not a colligative property?

A. Depression in freezing point

B. Elevation in boiling point

C. Osmotic pressure

D. Modification of refractive index

Answer: D

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17. Conductivity of a solution is directly proportional to:

A. Dilution

B. Number of ions

C. Current density

D. Volume of the solution

Answer: B

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18. Identify the alloy containing a non-metal as a constitutent in it.

A. Invar

B. Steel

C. Bell metal

D. Bronze

Answer: B

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19. Which of the following has lowest reducing character ?

A. H_2O

B. H_2S

C. H_2Te

D. H_2Se

Answer: A

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20. Alkyl halides undergo:

A. Electrophilic substitution reactions

B. Electrophilic addition reactions

C. Nucleophilic substitution reactions

D. Nucleophilic addition reactions

Answer: C

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21. When acetaldehyde is treated with Grignard reagent, followed by hydrolysis the product formed is :

A. Primary alcohol

B. Secondary alcohol

C. Carboxylic acid

D. Tertiary alcohol.

Answer: B

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22. When oxalic acid is heated with glycerol we get :

A. Formic acid

B. Acetic acid

C. Lactic acid

D. Tartaric acid

Answer: A

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23. Which of the following reagent cannot be used to prepare an alkyl chloride from an alcohol ?

A. $HCl + ZnCl_2$

B. $SOCl_2$

C. $NaCl$

D. PCl_3

Answer: C

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24. Which of the following elements is present as the impurity to the maximum extent in the pig iron?

A. Manganese

B. Carbon

C. Silicon

D. Phosphorus

Answer: B

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25. The number of faradays required to reduce one mole of Cu^{2+} to metallic copper is

A. One

B. Two

C. Three

D. Four

Answer: B

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26. Which solution is isotonic to the blood ?

A. 0.75% by weight of NaCl approximately

B. 0.99% by weight of NaCl approximately

C. 0.90% by weight of NaCl approximately

D. None of these

Answer: C

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27. Which of the following statements regarding Ideal solutions is false?

A. Ideal solutions obey Raoult's law under all conditions of temperature and concentrations

B. There will be some change in volume on mixing the components, i.e, $\Delta V_{\text{mixing}} \neq 0$

C. There will be no change in enthalpy when the two components are mixed, i.e., $\Delta H_{\text{mixing}} = 0$

D. There will be no change in volume on mixing the components, i.e., $\Delta V_{\text{mixing}} = 0$

Answer: B

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28. A solid has a structure in which 'W' atoms are located at the corners of a cubic lattice, 'O' atoms at the centre of edges and 'Na' atoms at

the centre of the cube. The formula for the compound is :

A. $NaWO_2$

B. $NaWO_3$

C. Na_2WO_3

D. $NaWO_4$

Answer: B

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29. Voids in two-dimensional hexagonal close packed structure are _____

A. Circular shape

B. Rectangular shape

C. Triangular shape

D. Hexagonal shape

Answer: C

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30. P_4O_{10} has_____ bridging O atoms.

A. 4

B. 5

C. 6

D. 2

Answer: C

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31. Diethyl ether on heating with conc. HI gives two moles of:

A. Ethanol

B. Iodoform

C. Ethyl iodide

D. Methyl iodide

Answer: C

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32. Ap-type material is electrically:

A. Concentration dependent

B. Negative

C. Positive

D. Neutral

Answer: D

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33. The p type material have maximum concentration of:

A. Electrons

B. Holes

C. Both electrons and holes

D. None of these

Answer: B

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34. The geometry of $XeOF_2$

A. Pentagonal

B. Pyramidal

C. Octahedral

D. T-shape

Answer: D

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35. Shape of XeF_4 molecule

A. Tetrahedral

B. Distorted

C. Square planar

D. Square pyramidal

Answer: C

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36. Cell reaction is spontaneous, when:

A. E^0_{red} is negative

B. ΔG° is negative

C. E^{0}_{oxid} is Positive

D. ΔG° is Positive

Answer: B

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37. Equilibrium constant K is related to E^{0}_{cell} and not E_{cell} because

A. E^{0}_{cell} is easier to measure than E_{cell}

B. E_{cell} becomes zero at equilibrium point but E^0_{cell} remains constant under all conditions

C. At a given temperature, Ecell changes hence value of K can't be measured

D. Any of the terms E_{cell} or E^0_{cell} can be used

Answer: A

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38. In which of the following structure, the coordination number of both ions are same?

A. Cesium Chloride

B. Sodium Chloride

C. Zinc Chloride

D. All of these

Answer: D

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39. The coordination number of anion is four in,

A. Sodium chloride

B. Zinc chloride

C. Calcium fluoride

D. Both (b) and (c)

Answer: D

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40. The colligative properties of a dilute solution depends on:

A. Nature of solute

B. Nature of solvent

C. Number of solute particles

D. Number of solvent particles

Answer: C

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41. The boiling point of a solvent containing a non-volatile solute:

A. Depressed

B. Elevated

C. Does not change

D. None of these

Answer: B

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42. S.I. unit of molar conductivity is $ohm^{-1}cm^2mol^{-1}$

A. Sm^2mol^{-1}

B. $Sm^{-1}mol^{-1}$

C. $Sm^{-2}mol$

D. Sm^2mol^{-1}

Answer: A

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43. The unit of cell constant is:

A. $ohm^{-1}cm^{-1}$

B. cm

C. $ohm^{-1}cm$

D. cm^{-1}

Answer: D

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44. The molecular formula of ether is:

A. C_nH_{2n+1} O

B. $C_nH_{2n}O$

C. $C_nH_{2n}OC_nH_{2n}$

D. $C_nH_{2n+2}O$

Answer: A

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45. The compound which is not isomeric with diethyl ether is:

A. n-propyl methyl ether

B. 2-methyl propan-2-ol

C. Butanone

D. Butan-1-o1

Answer: C

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46. Out of all the halogen hydracids, the weakest hydracid is:

A. HI

B. HBr

C. HF

D. HCl

Answer: C

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47. Which halogen acid has highest acidic strength (in water)?

A. HCl

B. HF

C. HBO

D. HI

Answer: D

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48. For which ore of the metal, froth floatation process is used:

A. Hematite

B. Bauxite

C. Cinnabar

D. Horn silver

Answer: A

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49. Which of the following is magnetite ?

A. Fe_2CO_3

B. Fe_2O_3

C. Fe_3O_4

D. $Fe_2O_33H_2O$

Answer: C

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50. The ratio of number of atoms present in a simple cubic, body centered cubic and face centered cubic structure are x: y : z. The numerical value of sum of x, y and z is _____ .

A. 4

B. 6

C. 8

D. 12

Answer: B

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51. Which of the following statement is/not true about hexagonal close packing?

A. It has 26% empty space

B. Coordination number is 6

C. Third layer is identical to first layer

D. None of these

Answer: B

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52. Phenol is more acidic than:

A. Acetic acid

B. p-methoxy phenol

C. Ethyl alcohol

D. p-nitrophenol

Answer: C

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53. Phenol reacts with bromine in carbon disulphide at low temperature to give :

A. o-Bromophenol

B. o and p-bromophenol

C. p-bromophenol

D. 2,4,6 Tribromophenol

Answer: B

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54. Compound [A] $C_4H_{10}O$ is found to be soluble in sulphuric acid. [A] does not react with sodium or potassium permanganate. On

heating with excess of HI, it is converted into a single alkyl halide. What is compound [A]

A. Diethyl ether

B. Acetone

C. Butanol

D. Butanal

Answer: A

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55. After heating A with excess of HI, the product formed is:

A. Butyl Iodide

B. Ethyl Iodide

C. Iodobutanal

D. Butane

Answer: B

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56. The method of zone refining of metals is based on the principle of :

A. Greater solubility of the impurity in the molten state than in the solid

B. Greater mobility of the pure metal than that of the Impurity

C. Higher melting point of the impurity

D. Greater noble character of solid metal than the impurity

Answer: A

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57. The smelting of iron in a blast furance involves all the steps except

A. Fusion

B. Sublimation

C. Reduction

D. Roasting

Answer: B

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58. In a foc arrangement of P and Q atoms, where P atom are at the corners of the unit cell. Q atom at the face centres and two atom are missing from two corners in each unit cell, the formula of the compound is:

A. PQ_4

B. P_4Q_3

C. P_2Q_3

D. P_4Q_5

Answer: A

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59. A metal crystallizes in foc lattice and the edge of the unit cell is 620 pm. The radius of the metal atom is:

A. 265.5 pm

B. 310 pm

C. 219.2 pm

D. 438.6 pm

Answer: C

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60. The correct order of the acidic strength is:

A. $HClO_4 < HClO_3 < HClO_2 HClO$

B. $HClO < HClO_2 < HClO_3 < HClO_4$

C. $HClO < HClO_3 < HClO_2 < HClO_4$

D. $HClO_4 < HClO_2 < HClO < HClO_3$

Answer: B

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61. What is the basicity of phosphorus acid ?

A. 2

B. 3

C. 1

D. 0

Answer: A

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62. An organic compound $X(C_4H_9Br)$ on treatment with alc, KOH gave isomeric product with the formula C_4H_8. On ozonolysis one of these gave only product CH_3CHO while the other gave two

A. 2-Bromobutane

B. 3-Bromobutane

C. 2-Bromobutene

D. 3-Bromobutene

Answer: A

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63. An organic compound A with molecular formula C_4H_9Br on treatment with alcoholic KOH gave two isomeric compound B and C with formula C_4H_8 On ozonolysis B. gave only product CH_3CHO while C gave two different products . Identify the compounds A, B

Compound B is:

A. But-1-ene

B. But-2-ene

C. Butane

D. None of these

Answer: B

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64. Isopropyl chloride undergoes hydrolysis by:

A. SN_1 Mechanism

B. SN_2 Mechanism

C. $SN_1 \& SN_2$ Mechanism

D. Neither $SN_1 \& SN_2$ Mechanism

Answer: C

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65. Which of the following undergoes nucleophilic substitution exclusively by SN^1 mechanism :

A. Benzyl Chloride

B. Ethyl chloride

C. Chloro benzene

D. Isopropyl chloride

Answer: A

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66. Assertion : Benzyl bromide when kept in acetone water it produces benzyle alcohol.

Reason : The reaction follows S_N2 machanism

A. Assertion is false but reason is true

B. Assertion is true but reason is false

C. Both assertion and reason are true, but reason is not a true explanation for assertion

D. Both assertion and reason are true and reason is the correct explanation for assertion

Answer: C

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67. Assertion: Alcohols are stronger acids than water

Reason: Reactivity of ethanol is less with sodium than that of isopropyl alcohol

A. Assertion is false but reason is true

B. Assertion is true but reason is false

C. Both assertion and reason are true, but reason is not a true explanation for assertion

D. Both assertion and reason are true and reason is the correct explanation for assertion

Answer: C

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68. Assertion : $HClO_4$ is less acidic than $HBrO_4$

Reason : $HClO_4$ ionises less in water than $HBrO_4$

A. Assertion is false but reason is true

B. Assertion is true but reason is false

C. Both assertion and reason are true, but reason is not a true explanation for assertion

D. Both assertion and reason are true and reason is the correct explanation for assertion

Answer: C

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69. Assertion : F_2 has low reactivity

Reason : F-F bond has low bond dissociation enthalpy

A. Assertion is false but reason is true

B. Assertion is true but reason is false

C. Both assertion and reason are true, but reason is not a true explanation for assertion

D. Both assertion and reason are true and reason is the correct explanation for assertion

Answer: B

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70. Assertion: Oxides and carbonates ores are concentrated by froth floatation process.

Reason: In froth flotation pine oil is used because prefentially wets the ore particels

A. Assertion is false but reason is true

B. Assertion is true but reason is false

C. Both assertion and reason are true, but reason is not a true explanation for assertion

D. Both assertion and reason are true and reason is the correct explanation for assertion

Answer: A

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