



CHEMISTRY

BOOKS - KALYANI CHEMISTRY (ENGLISH)

SAMPLE PAPER 4 (CHEMISTRY)

Questions

1. When molten zinc is cooled to solid state, it assumes *hcp* structure.

Then the number of nearest neighbours of zinc atom will be

A. 6

B. 8

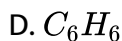
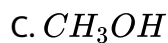
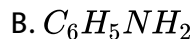
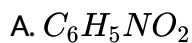
C. 12

D. 4

Answer: C

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2. The boiling point of C_6H_6 , CH_3OH , $C_6H_5NH_2$ and $C_6H_5NO_2$ are $80^\circ C$, $65^\circ C$, $184^\circ C$ and $212^\circ C$ respectively. Which will show highest vapour pressure at room temperature :



Answer: C

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3. Salt bridge contains

- A. Calomel
- B. Corrosive sublimate
- C. H_2O
- D. agar-agar gel

Answer: D



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4. Which of the following metallic pair does not form an alloy ?

- A. Fe, Hg
- B. Fe, C
- C. Zn, Cu
- D. Hg, Na

Answer: A



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5. Nobel gases do not occur in _____

- A. Sea water
- B. atmosphere
- C. Ores
- D. Natural gas

Answer: A



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6. Which of the following halogen exchange reaction will occur in acetone

?

A. $R - I + NaCl$

B. $R - f + KCl$

C. $R - Cl + NaI$

D. $CH_3F + AgBr$

Answer: C

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7. Fermentation is _____

A. Endothermic reaction

B. Exothermic reaction

C. Reverse reaction

D. None of these

Answer: B

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8. The number of Bravis lattice is _____

A. 12

B. 14

C. 7

D. 16

Answer: B



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9. During evaporation of liquid

A. The temperature remains unaffected

B. May rise or fall depending on the nature

C. The temperature of the liquid will fall

D. The temperature of the liquid will rise

Answer: C



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10. The method of protecting a metal from corrosion by connecting it to another easily oxidisable metal is known as _____

A. Anodic protection

B. Galvanisation

C. Amalgamation

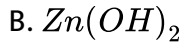
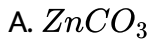
D. Cathodic protection

Answer: D



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11. Which of the following is used as a white pigment?



Answer: D



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12. Nuclear fusion produces _____

A. Argon

B. Deuterium

C. Helium

D. Krypton

Answer: C

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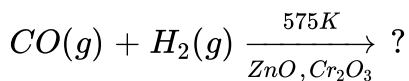
13. In one step, ethyne can be obtained from _____

- A. ethanol
- B. ethanal
- C. chloroform
- D. ethyl bromide

Answer: C

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14. Which of the following products is produced during the given chemical reaction?



A. Ethanol

B. Methanal

C. Methanol

D. Ethanal

Answer: C



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15. Cations are present in the interstitial sites in

A. Frenkel defect

B. Schottky defect

C. Vacancy defect

D. Metal deficiency defeat

Answer: A



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16. The vapour pressure of water depends upon _____

- A. Temperature
- B. Volume of container
- C. Surface area of container
- D. All of these

Answer: A



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17. Among the following quantities mentioned below, which is temperature independent?

- A. Emf of cell
- B. Cell constant
- C. Conductivity

D. Resistivity

Answer: B



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18. Which colourless gas have the smell of rotten fish ?

A. H_2S

B. PH_3

C. SO_2

D. None of these

Answer: B



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19. Chlorobenzene on treatment with sodium in dry ether gives diphenyl.

The name of the reaction is

- A. Wurtz-fittig reaction
- B. Fittig reaction
- C. Gattermann reaction
- D. Wurtz reaction

Answer: B



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20. In India, ethanol is mainly manufactured by

- A. Catalytic hydrogenation of CO
- B. Fermentation of molasses
- C. Hydration of ethylene

D. Destructive distillation of wood

Answer: B



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21. The spin only magnetic moment of Fe^{+2} ion

A. 4 BM

B. 5 BM

C. 6 BM

D. 7 BM

Answer: B



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22. Edge length of a cube is 347 pm. Its body diagonal will be _____

A. 263.3 pm

B. 336.5 pm

C. 601 pm

D. 436.5 pm

Answer: C



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23. Among the following substances the lowest vapour pressure is exerted by

A. Rectified spirit

B. Kerosene

C. Mercury

D. Water

Answer: C



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24. The conductance of electrolytes decreases due to :

- A. Interionic attraction at higher concentration
- B. Increase in temperature
- C. Dilution
- D. None of these

Answer: C



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25. Separation of silver from lead is done by :

- A. filtration
- B. addition of zinc
- C. amalgamation

D. fractional crystallisation

Answer: B

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26. The least stable hydride of 15th group element is _____

A. NH_3

B. PH_3

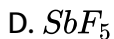
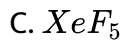
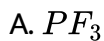
C. AsH_3

D. BiH_3

Answer: D

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27. The non-existent species is



Answer: C

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28. Which of the following compounds will have highest melting point?

A. Chlorobenzene

B. o-dichlorobenzene

C. m-dichlorobenzene

D. p-dichlorobenzene

Answer: D

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29. What should be the correct IUPAC name for diethylbromomethane?

A. 1-Bromo-1,1-diethylmethane

B. 3-Bromopentane

C. 1-Bromo-1-ethylpropane

D. 1-Bromopentane

Answer: B



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30. Which is most viscous ?

A. CH_3OH

B. C_2H_5OH

C. CH_2OH
|
 CH_2OH

D. None of these

Answer: C

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31. Which of the following process do not yield alcohols?

- A. Acid catalysed hydration of alkenes
- B. Hydroboration-oxidation of alkenes
- C. Reduction of aldehydes
- D. Free radical halogenation of alkanes

Answer: D

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32. How many unit cells are shared by an atom on the face of a unit cell?

A. 3

B. $\frac{1}{2}$

C. 1

D. 2

Answer: B



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33. Aluminium crystallises in a face-centred cubic lattice. The edge length of the unit cell of aluminium is $4.05 \times 10^{-10}\text{m}$. What is the density of aluminium? (Atomic mass of Al=27)

A. 2700kgm^{-1}

B. 3000kgm^{-1}

C. 2400kgm^{-3}

D. 2100kgm^{-3}

Answer: A



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34. Which will have largest ΔT_b

- A. 65 g urea in 1 kg water
- B. 18 g glucose in 100 g water
- C. 342 g sucrose in 1000 g water
- D. 180 g glucose in 1 kg water

Answer: A



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35. Which of the following is not an example of an Ideal solution?

- A. Benzene + Toluene

B. n-Hexane + n-Heptane

C. Ethyl alcohol + Water

D. Ethyl bromide + Ethyl chloride

Answer: C

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36. A half-cell (quinhydrone) electrode may be reversible if it is in presence of _____

A. quinol

B. quinone

C. H^+

D. None of these

Answer: C

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37. Which metal cannot be obtained by electrolysis ?

A. Al

B. Ca

C. Mg

D. Cr

Answer: D

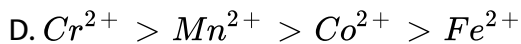
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38. The stability of Mn^{2+} , Fe^{2+} , Cr^{2+} , Co^{2+} in order of (Atomic Number of $Mn = 25$, $Fe = 26$, $Cr = 24$, $Co = 27$) is

A. $Mn^{2+} > Fe^{2+} > Cr^{2+} > Co^{2+}$

B. $Fe^{2+} > Mn^{2+} > Co^{2+} > Cr^{2+}$

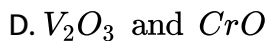
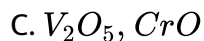
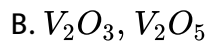
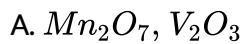
C. $Co^{2+} > Mn^{2+} > Fe^{2+} > Cr^{2+}$



Answer: A

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39. Out of Mn_2O_7 , V_2O_3 , V_2O_5 , VrO , Cr_2O_3 the basic oxides are



Answer: D

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40. Extraction of gold and silver involves leaching with CN^- ion. Silver is later recovered by

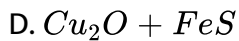
- A. Distillation
- B. Zone refining
- C. Displacement
- D. Liquation

Answer: C

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41. What is the composition of Copper matte.

- A. $Cu_2S + FeS$
- B. $Cu_2S + Cu_2O$
- C. $Cu_2S + FeO$



Answer: A

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42. SN^1 reaction of optically active alkyl halides leads to _____

- A. Inversion of configuration
- B. Retention of configuration
- C. Racemisation
- D. None of these

Answer: C

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43. Which of the following structure is enantiomeric with the molecule given in the figure?



A.

B.

C.

D.

Answer: A



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44. Which of the following produces violet colour with $FeCl_3$ solution?

A. Alkyl halides

B. Ethanal

C. Enols

D. Ethanol

Answer: C

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45. Identify the catalyst in the hydration of alkenes to produce alcohols.

A. HCl

B. $FeCl_3$

C. Pt

D. Ni

Answer: A

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46. The ratio of cationic radius to anionic radius in an ionic crystal is greater than 0.732. Its coordination number is:

- A. 1
- B. 4
- C. 6
- D. 8

Answer: D



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47. The ratio of close packed atoms to tetrahedral holes in cubic close packing is

- A. 1 : 1
- B. 1 : 2
- C. 1 : 3

D. 2

Answer: A

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48. A solution containing 8.6g urea in one litre was found to be isotonic with 0.5 % (wt/vol.) solution of an organic, non-volatile solution. The molecular weight of latter is

A. 861.2

B. 3489

C. 34.89

D. 348.9

Answer: D

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49. Which law specifically governs the relative lowering of vapor pressures in solutions?

- A. van't Hoff law
- B. Boyle's law
- C. Raoult's law
- D. Amagat's law

Answer: C



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50. Forth floatation process is used for _____

- A. Bauxite
- B. Haematite
- C. Horn silver
- D. Cinnabar

Answer: D

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51. Which of the following is used as collector in froth floatation process ?

A. Aniline

B. Pine oil

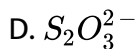
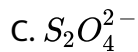
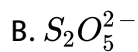
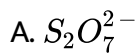
C. Ethyl xanthate

D. Potassium ethyl xanthates

Answer: A

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52. There is no $S - S$ bond in .



Answer: A



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53. Which is not oxidised by MnO_2^{-7}



Answer: B



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54. When Zn reacts with dil. HNO_3 , the product (without nitrate) obtained is _____



Answer: C

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55. Which of the following reacts with PCl_3 to form PCl_5 ?



C. Surface area of container

D. Cl_2

Answer: D

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56. $Pt, H_2 / H_2O$ this half cell behaves as SHE, if pressure is _____

A. 1 bar

B. 2 bar

C. 10^7 bar

D. 10^{-13} bar

Answer: D

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57. Criteria for equilibrium are _____

A. $\Delta G^\circ = 0, E_{\text{cell}}^0 = 0$

B. $\Delta G^\circ = 0, E_{\text{cell}} = 0$

C. Both (a) and (b) are correct

D. None of these

Answer: C

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58. Reaction of chlorobenzene with chloral in presence conc. H_2SO_4

gives _____

A. Gammazene

B. Hexachloroethane

C. Freon

D. DDT

Answer: D



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59. Freon 12 is manufactured from which of the following compound in the Swart's reaction?

- A. Dichloromethane
- B. Trichloromethane
- C. Tetrachloromethane
- D. Dichlorodifluoromethane

Answer: A



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60. What is the value of universal gas constant in Nernst equation when the potential is given in volts?

A. $8.314 \text{ J mol}^{-1} \text{ K}^{-1}$

B. $0.0821l, \text{ atm mol}^{-1}K^{-1}$

C. $8.205m^3 \text{ atm mol}^{-1}K^{-1}$

D. $1.987 \text{ cal mol}^{-1}K^{-1}$

Answer: A

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61. Calculate the equilibrium constant for the reaction $Fe + CuSO_4 \rightleftharpoons FeSO_4 + Cu$ at $25^\circ C$. (Given $E^\circ(OP/Fe) = 0.5 \text{ V}$, $E^\circ(OP/Cu) = -0.4 \text{ V}$)

A. 3.46×10^{30}

B. 3.46×10^{26}

C. 3.32×10^{30}

D. 3.22×10^{26}

Answer: C



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62. Which one a gem-dihalide?

- A. Ethylidene dichloride
- B. Benzyl chloride
- C. Ethylene dichloride
- D. None of these

Answer: A



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63. The strongest acid among the following aromatic compound is:

- A. Meta-nitrophenol
- B. Ortho-nitrophenol
- C. Para-chlorophenol

D. Para-nitrophenol

Answer: D

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

A. Methyl iodide

B. Ethyl iodide

C. Ethanol

D. Ethyl iodide

Answer: B

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65. Action of diazomethane on phenol liberates _____

A. H_2

B. O_2

C. CO_2

D. N_2

Answer: D



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66. Assertion (A) HI cannot be prepared by the reaction of KI with concentrated H_2SO_4 .

Reason (R) HI has lowest H-X bond strength among halogen acids.

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 (A) The α -hydrogen atom in carbonyl compounds is less acidic.

Reason (R) The anion formed after the loss of α -hydrogen atom is resonance stabilised.

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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68. Assertion (A) E_{cell} should have a positive value for the cell to function,

Reason(R) $E_{\text{cathode}} < E_{\text{anode}}$

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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69. Assertion (A) When NaCl is added to water a depression in freezing point is observed.

Reason (R) The lowering of vapour pressure of a solution causes depression in the freezing point.

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: D



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70. Assertion : Alkali halides do not show Frenkel defect

Reason : Ions of alkali halides have almost equal in size

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: D



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