CHEMISTRY

AAKASH INSTITUTE ENGLISH

Test-12

Exercise

1. If helium and oxygen gas are allowed to escape out of a container containing equal amount of He and O_2 under slmllar conditions

of temperature and pressure the ratio of rate of diffusion of O_2 to that of He is

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

B. 2

C. $\frac{1}{2\sqrt{2}}$

D. $2\sqrt{2}$

Answer:

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2. The wavelength of the particle having mass 500 g and moving with a velocity of $2\frac{m}{h}$ is of the order of

A. $10^{-40}m$

B. $10^{-30}m$

C. $10^{-35}m$

D. `10^-20 m

Answer:

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3. Which of the following is a straight line graph?

A. Plot of rate constant vs $\frac{1}{T} emperature$

B. Plot of concentration of reactant vs time for a first order reaction

C. Plot of half ife vs initial concentration of a zero order reaction

D. All of these

Answer:

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4. Calculate the molar mass of Carbon tetrachloride

A. 145

B. 154

C. 164

D. 172

Answer:

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5. Freezing point will be lowest for which of the given equimolar solutions?

A. $Ca(NO_3)_2$

B. $Al_2(SO_4)_3$

C. KNO_3

D. Urea

Answer:

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6. Calculate the molar mass of Barium hydroxide

A. 170

B. 171

C. 172

D. 173

Answer:

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7. How many gram of H_3PO_4 would be needed to neutralise 58 gm of $Mg(OH)_2$?

A. 65.3g

B. 78.5g

C. 58.5g

D. 98.5g

Answer:

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8. The time taken for reducing 40 g of a substance to 10 g, following first order kinetics is 20 minutes. If reaction is started with 100 g the amount of reactant left after 10 minutes is

A. 40 g

B. 25 g

C. 50 g

D. 60 g

Answer:

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9. The difference between heats of reaction at constant pressure and constant volume for the reaction,

$2C_6H_6(l) + 15O_2(g) \rightarrow 12CO_2(g) + 6H_2O(l)$

at $25^\circ C$ in kJ is

A. $-3.5kJ$

B. $+3.7kJ$

C. $-7.4kJ$

D. $+7.4kJ$

Answer:

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10. If the enthalpy of vapourization of a liquid X is 30 kJ/mol and its entropy of Vaporization is 75 $Jmol^{-1}K^{-1}$ the temperature of vapours of liquid X at 1 atmosphere pressure is nearly

A. 250 K

B. 298 K

C. 350 K

D. 400 K

Answer:

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11. How many gram of H_3PO_4 would be needed to neutralise 116 gm of $Mg(OH)_2$?

A. 130.6g

B. 150.6

C. 116.6g

D. 100g

Answer:

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12. Which of the following will favour the formation of CO_2(g) in equilibrium with CaO and $CaCO_3$?

A. Addition of some $CaCO_3$ into the reaction vessel

B. Addition of some CaO from the reaction vessel

C. Addition of Ne (g) Into the vessel at constant pressure

D. All of these

Answer:

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13. Equivalent mass of HCI in the given reaction

$$K_2Cr_2O_7 \rightarrow 2CrCl_3 + 2KCL + 3Cl_2 + 7H_2O$$

(M is molar mass of HCl)

A. $\frac{M}{6}$

B. $3\frac{M}{7}$

C. $7\frac{M}{3}$

D. M

Answer:

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14. Volume of O_2 gas produced on electrolysis of dil. H_2SO_4 is 1120 mL The volume of H_2 produced in the same time is under identical conditions is

A. Zero

B. 1.12 L

C. 0.56 L

D. 2.24 L

Answer:

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15. Which of the following is formed when $K_2Cr_2O_7, CaCl_2$ and conc.H_2SO_4 are heated together?

A. $CrCl_3$

B. $Cr_2(SO_4)_3$

C. CrO_2Cl_2

D. K_CrO_4

Answer:

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16. Choose the correct statement with respect to HF.

A. It is a stronger acid than HCI

B. It has lower thermal stability than HCI

C. It can be used for etching glass

D. All of these

Answer:

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17. Which of the following metal oxides can be reduced by CO?

A. Fe_2O_3

B. ZnO

C. CaO

D. Both (1) & (2)

Answer:

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18. The sequence of ionic mobility in aqueous solutions is -

A. $Li^+ > Na^+ > K > H^+$

B. $H^+ > Li^+ > K > Na^+$

C. $Li^+ > H^+ > Na > K^+$

D. $H^+ > K^+ > Na > Li^+$

Answer:

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19. $H_2 + O_2$ gives

A. H_2SO_5

B. $H_2S_2O_8$

C. H_2O_2

D. H_2SO_3

Answer:

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20. Smallest bond angle is shown by

A. NH_3

B. PH_3

C. BCl_3

D. All have same bond angle

Answer:

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21. NaH gives H_2(g) on

A. Electrolysis

B. Reaction with H_2O

C. Strong healing in air

D. All of these

Answer:

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22. Strongest base out of the given species is

A. ClO^-

B. ClO^-_2

C. ClO^-_3

D. ClO^-_4

Answer:

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23. An oxide of an element `X' having atomic number 23 has a magnetic moment of 1.732 BM. The oxidation state of X in the oxide is

A. $+2$

B. $+3$

C. $+4$

D. $+5$

Answer:

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24. Which of the following is largest in size?

A. Pm^{+3}

B. Yb^{+3}

C. Ce^{+3}

D. La^{3+}

Answer:

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25. The correct order of stability is

A. $Sn_{aq}^{+4} < Sn_{aq}^{2+}$

B. $Cu_{aq}^{2+} < Cu_{aq}^{1+}$

C. $Fe_{aq}^{2+} < Fe_{aq}^{+3}$

D.

Answer:

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26. Which of the following pair of species are isodiaphers?

A. C_6^{14} and N_7^{14}

B. C_6^{13} and C_6^{14}

C. C_8^{12} and N_7^{14}

D. All the these

Answer:

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27. Which of the following is least basic?

A. SnO

B. K_2O

C. MgO

D. CaO

Answer:

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28. Second ionization energy is maximum for

A. Boron

B. Beryllium

C. Magnesium

D. Aluminium

Answer:

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29. How many gram of H_3PO_4 would be needed to neutralise 87 gm of $Mg(OH)_2$?

A. 100g

B. 98g

C. 58g

D. 60g

Answer:

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30. Molarity of H_2SO_4 is 9 M. Its density is 1.8 g/ml, hence molality is :

A. 500m

B. 250m

C. 30m

D. 20m

Answer:

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31. Give 2 Properties of Hydrogen-Bonded molecular solids

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32. Reaction of an optically active alcohol with $SOCl_2$ in absence of base follows with

A. Retention of configuration

B. Inversion of configuration

C. Carbocation formation

D. Racemisation

Answer:

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33. Mole fraction is formulated by

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34. When cyclohexane is added to water

A. It dissolves in water

B. It floats because it exists in boat form most of the time

C. It floats because water is denser

D. It settles down as it is denser than water

Answer:

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35. Which of the following has highest dipole moment?

A. CH_3F

B. CH_3Cl

C. CH_3Br

D. CH_3l

Answer:

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36. Name a methods of preparing haloalkanes with examples

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37. Butan-2-ol can be prepared from But-2-ene by

A. Reaction with $\frac{H^+}{H_2}O$

B. Reaction with B_2H_6 in ether followed by

`H_2O_2/OH^-

C. Reaction with $Hg(OAc)_2$, , H_2O

followed by $NaBH_4$

D. All of these

Answer:

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38. Which of the following has highest boiling point?

A. 2-Methylpropane

B. n-butane

C. 2,2-Dimethyl propane

D. n-pentane

Answer:

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39. Molarity of H_2SO_4 is 27 M. Its density is 2.7 g/ml, hence molality is :

A. 500m

B. 333m

C. 33.3m

D. 271m

Answer:

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40. In the following questions , a statement of assertion (A) is followed by a statement of reason (R).

A: The number of lone pairs in CO_2 molecule is zero.

R: The formal charge of C atom in CO_2 is +4.

A. If both Assertion & Reason are true and the reason is the correct explanation of the assertion, then mark (1).

B. If both Assertion & Reason are true but the reason is not the correct explanation of the assertion, then mark (2).

C. If Assertion is true statement but Reason is false, then mark (3).

D. If both Assertion and Reason are false statements, then mark (4).

Answer:

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41. In the following questions , a statement of assertion (A) is followed by a statement of reason (R).

A: $\left[Co(NH_3)_6\right]^{3+}$ is a diamagnetic complex.

R: $\left[Co(NH_3)_6\right]^{3+}$ has octahedral shape.

A. If both Assertion & Reason are true and the reason is the correct explanation of the assertion, then mark (1).

B. If both Assertion & Reason are true but the reason is not the correct explanation

of the assertion, then mark (2).

C. If Assertion is true statement but Reason is false, then mark (3).

D. If both Assertion and Reason are false statements, then mark (4).

Answer:

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42. In the following questions , a statement of assertion (A) is followed by a statement of reason (R).

A: For $3dz^2$ orbital, I = 0, 1 and 2.

R: Number of angular nodes for $3dz^2$ orbital is two.

A. If both Assertion & Reason are true and the reason is the correct explanation of the assertion, then mark (1).

B. If both Assertion & Reason are true but the reason is not the correct explanation of the assertion, then mark (2).

C. If Assertion is true statement but Reason is false, then mark (3).

D. If both Assertion and Reason are false statements, then mark (4).

Answer:

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43. In the following questions , a statement of assertion (A) is followed by a statement of reason (R). Br A: Glucose gives positive Tollen's test. R: Glucose gives a reddish brown precipitate of CuO with Fehling's solution

A. If both Assertion & Reason are true and the reason is the correct explanation of the assertion, then mark (1).

B. If both Assertion & Reason are true but the reason is not the correct explanation

of the assertion, then mark (2).

C. If Assertion is true statement but Reason is false, then mark (3).

D. If both Assertion and Reason are false statements, then mark (4).

Answer:

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44. In the following questions , a statement of assertion (A) is followed by a statement of reason (R).

A: Acetophenone on reaction with NaOl followed by treatment with acid gives benzoic acid.

R: Acetophenone gives positive iodoform test.

A. If both Assertion & Reason are true and the reason is the correct explanation of the assertion, then mark (1).

B. If both Assertion & Reason are true but the reason is not the correct explanation of the assertion, then mark (2).

C. If Assertion is true statement but Reason is false, then mark (3).

D. If both Assertion and Reason are false statements, then mark (4).

Answer:

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45. In the following questions , a statement of assertion (A) is followed by a statement of reason (R).

A: Ethyl acetate on treatment with excess of CH_3MgBr followed by hydrolysis gives 2-methylbutan-2-ol.

R: CH_3MgBr acts as a base in this reaction.

A. If both Assertion & Reason are true and the reason is the correct explanation of the assertion, then mark (1).

B. If both Assertion & Reason are true but the reason is not the correct explanation of the assertion, then mark (2).

C. If Assertion is true statement but Reason is false, then mark (3).

D. If both Assertion and Reason are false statements, then mark (4).

Answer:

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46. In the following questions , a statement of assertion (A) is followed by a statement of reason (R).

A: When $(NH_4)_2Cr_2O_7$(s) is heated its colour changes from orange to green.

R: N_2 is evolved in this reaction.

A. If both Assertion & Reason are true and the reason is the correct explanation of the assertion, then mark (1).

B. If both Assertion & Reason are true but the reason is not the correct explanation of the assertion, then mark (2).

C. If Assertion is true statement but Reason is false, then mark (3).

D. If both Assertion and Reason are false statements, then mark (4).

Answer:

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47. In the following questions , a statement of assertion (A) is followed by a statement of reason (R).

A : Hybridisation of Al atom in $AlCl_3$ (vapour) is sp^2

R: In vapour state each Al atom is directly bonded to three Cl atoms.

A. If both Assertion & Reason are true and the reason is the correct explanation of the assertion, then mark (1).

B. If both Assertion & Reason are true but the reason is not the correct explanation of the assertion, then mark (2).

C. If Assertion is true statement but Reason is false, then mark (3).

D. If both Assertion and Reason are false statements, then mark (4).

Answer:

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48. In the following questions , a statement of assertion (A) is followed by a statement of reason (R).

A: Bond order of CO_3^{-2} is 1.33

R: Carbonate ion is isoelectronic with nitrate ion.

A. If both Assertion & Reason are true and the reason is the correct explanation of the assertion, then mark (1).

B. If both Assertion & Reason are true but the reason is not the correct explanation of the assertion, then mark (2).

C. If Assertion is true statement but Reason is false, then mark (3).

D. If both Assertion and Reason are false statements, then mark (4).

Answer:

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49. In the following questions , a statement of assertion (A) is followed by a statement of reason (R). Br A: NaCl has greater tendency to show Schottky defect than ZnS. R: Both NaCl and ZnS have 4 formula units per unit cell

A. If both Assertion & Reason are true and the reason is the correct explanation of the assertion, then mark (1).

B. If both Assertion & Reason are true but the reason is not the correct explanation

of the assertion, then mark (2).

C. If Assertion is true statement but Reason is false, then mark (3).

D. If both Assertion and Reason are false statements, then mark (4).

Answer:

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50. In the following questions , a statement of assertion (A) is followed by a statement of reason (R). A: When 4 g of NaOH is added to 100 mL of H_2SO_4 then 0.05 mole of Na_2SO_4 is produced. R: NaOH is the limiting reagent in above reaction

A. If both Assertion & Reason are true and the reason is the correct explanation of the assertion, then mark (1).

B. If both Assertion & Reason are true but the reason is not the correct explanation of the assertion, then mark (2).

C. If Assertion is true statement but Reason is false, then mark (3).

D. If both Assertion and Reason are false statements, then mark (4).

Answer:

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51. In the following questions , a statement of assertion (A) is followed by a statement of reason (R).

A. The value of van der Waals constant a smaller for O_2 than for H_2O.

R. Molar mass of O_2 is greater than that of H_2O.

A. If both Assertion & Reason are true and the reason is the correct explanation of the assertion, then mark (1).

B. If both Assertion & Reason are true but the reason is not the correct explanation of the assertion, then mark (2).

C. If Assertion is true statement but Reason is false, then mark (3).

D. If both Assertion and Reason are false statements, then mark (4).

Answer:

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52. Molarity of $Mg(OH)_2$ is 18 M. Its density is 1..6 g/ml, hence molality is :

A. 32m

B. 54m

C. 27m

D. 18m

Answer:

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53. In the following questions , a statement of assertion (A) is followed by a statement of reason (R). Br A: Dilute solutions of alkali metal in liquid ammonia are paramagnetic in nature R: Formation of ammoniated cations takes place when alkali metals dissolve in ammonia.

A. If both Assertion & Reason are true and the reason is the correct explanation of the assertion, then mark (1).

B. If both Assertion & Reason are true but the reason is not the correct explanation

of the assertion, then mark (2).

C. If Assertion is true statement but Reason is false, then mark (3).

D. If both Assertion and Reason are false statements, then mark (4).

Answer:

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54. In the following questions , a statement of assertion (A) is followed by a statement of reason (R). Br A : For every chemical reaction at equilibrium, the value of standard Gibbs free energy change is zero. R: At constant temperature and pressure for a reaction that direction is preferred for which Gibbs free energy increases.

A. If both Assertion & Reason are true and the reason is the correct explanation of the assertion, then mark (1).

B. If both Assertion & Reason are true but the reason is not the correct explanation of the assertion, then mark (2).

C. If Assertion is true statement but Reason is false, then mark (3).

D. If both Assertion and Reason are false statements, then mark (4).

Answer:

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55. In the following questions , a statement of assertion (A) is followed by a statement of reason (R).

A: The conjugate base of HCO_3^- , ion is H_2CO_3.

R: Greater the strength of conjugate base, greater the strength of acid.

A. If both Assertion & Reason are true and the reason is the correct explanation of the assertion, then mark (1).

B. If both Assertion & Reason are true but the reason is not the correct explanation of the assertion, then mark (2).

C. If Assertion is true statement but Reason is false, then mark (3).

D. If both Assertion and Reason are false statements, then mark (4).

Answer:

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56. Molarity of $Mg(OH)_2$ is 27 M. Its density is 1.8 g/ml, hence molality is :

A. 32m

B. 115m

C. 18m

D. 27m

Answer:

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57. The dissociation constants of m-nitrobenzoic acid and acetic acid are 36.0×10^{-5} and 1.8×10^{-5} respectively. What are their relative strengths?

A. 5

B. 4.47

C. 6

D. 1

Answer:

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58. In the following questions , a statement of assertion (A) is followed by a statement of reason (R).

A: Addition of Br_2/H_2O to propene given 1-Bromo propan-2-ol as the major products,

R: Addition of Br_2/H_2O to an alkene is an example of electrophilic addition

A. If both Assertion & Reason are true and the reason is the correct explanation of the assertion, then mark (1).

B. If both Assertion & Reason are true but the reason is not the correct explanation of the assertion, then mark (2).

C. If Assertion is true statement but Reason is false, then mark (3).

D. If both Assertion and Reason are false statements, then mark (4).

Answer:

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