RAVI MATHS TUITION CENTER, NEAR VILLIVAKKAM RLY STATION, CHENNAI – 82.
WHATSAPP - 8056206308

Basic Concepts of Chemistry and Chemical Calculations 1

11th Standard

Chemistry

Exam Time : 00:50:00 Hrs | Total Marks : 50

50 x 1 = 50

1) 40 ml of methane is completely burnt using 80 ml of oxygen at room temperature The volume of gas left. after cooling to room temperature is
(a) 40 ml CO_2 gas (b) 40 ml CO_2 gas and 80 ml H_2O gas (c) 60 ml CO_2 gas and 60 ml H_2O gas (d) 120 ml CO_2 gas

2) An element X has the following isotopic Composition ^{200}X = 90%, ^{199}X = 8% and ^{202}X = 2% The Weighted average atomic mass of the element X is closet to
(a) 201 u (b) 202 u (c) 199 u (d) 200 u

3) Assertion: Two mole of glucose contains 12.044 x 10^{23} molecules of glucose
Reason: Total number of entities present in one mole of any substance is equal to 6.02 x 10^{22}
(a) both assertion and reason are true and the reason is the correct explanation of assertion (b) both assertion and reason are true but the reason is not the correct explanation of assertion (c) an assertion is true but reason is false (d) both assertion and reason are false

4) Carbon forms two oxides, namely carbon monoxide and carbon dioxide. The equivalent mass of which element remains constant?
(a) Carbon (b) Oxygen (c) Both carbon and oxygen (d) Neither carbon nor oxygen

5) The equivalent mass of a trivalent metal element is 9 g eq^{-1} the molar mass of its anhydrous oxide is
(a) 102 g (b) 27 g (c) 270 g (d) 78 g

6) The number of water molecules in a drop of water weighing 0.018 g is
(a) 6.022 x 10^{26} (b) 6.022 x10^{23} (c) 6.022 x 10^{20} (d) 9.9 x 10^{22}

7) 1 g of an impure sample of magnesium carbonate (containing no thermally decomposable impurities) on complete thermal decomposition gave 0.44 g of carbon dioxide gas. The percentage of impurity in the sample is _____
(a) 0% (b) 4.4% (c) 16% (d) 8.4%

8) When 6.3g of sodium bicarbonate is added to 30g of the acetic acid solution, the residual solution is found to weigh 33g. The number of moles of carbon dioxide released in the reaction is
(a) 3 (b) 0.75 (c) 0.075 (d) 0.3

9) When 22.4 litres of H_2(g) is mixed with 11.2 litres of Cl_2(g), each at 273 K at 1 atm the moles of HCl (g), formed is equal to
(a) 2 moles of HCl (g) (b) 0.5 moles of HCl (g) (c) 1.5 moles of HCl (g) (d) 1 moles of HCl (g)

10) Hot concentrated sulphuric acid is a moderately strong oxidizing agent. Which of the following reactions does not show oxidising behaviour?
(a) $Cu + 2H_2SO_4 \longrightarrow CuSO_4 + SO_2 + 2H_2O$ (b) $C + 2H_2 + SO_4 \longrightarrow CO_2 + 2SO_2 + 2H_2O$ (c) $BaCl_2 + H_2SO_4 \longrightarrow BaSO_4 + 2HCl$ (d) None of the above

11) Choose the disproportionation reaction among the following redox reactions.
(a) $3Mg_{(s)} + N_{2(g)} \longrightarrow Mg_3N_{2(s)}$ (b) $P_{4(s)} + 3NaOH + 3H_2O \longrightarrow PH_{3(g)} + 3NaH_2PO_{2(aq)}$ (c) $Cl_{2(g)} + 2KI_{(aq)} \longrightarrow 2KCl_{(aq)} + I_2$ (d) $Cr_2O_{3(s)} + 2A1_{(s)} \longrightarrow Al_2O_3(s) + 2Cr(s)$

12) The oxidation state of a element in its uncombined state is
(a) zero (b) +1 (c) -1 (d) none

13) Fe2 + $\longrightarrow Fe^{3+} + e^-$ is a _____ reaction.
(a) redox (b) reduction (c) oxidation (d) decomposition

14) Assertion: Fluorine has an oxidation state of - 1in all its compounds.
Reason: Fluorine is the most electronegative element of the periodic table.
(a) Both assertion and reason are correct and the reason is the correct explanation for the assertion. (b) Both assertion and reason are correct but reason is not the correct explanation for the assertion (c) Assertion is true but reason are false. (d) Both assertion and reason are false.

15) The oxidation number of oxygen in O_2 is _____
(a) 0 (b) +1 (c) +2 (d) -2

16) The oxidation number of hydrogen in LiH is _____

(a) +1 (b) -1 (c) +2 (d) -2

17) Which one of the following represents 180g of water?

(a) 5 Moles of water (b) 90 moles of water (c) $\frac{6.022\times10^{23}}{180}$ molecules of water (d) 6.022 x 10^{24}molecules of water

18) 7.5 g of a gas occupies a volume of 5.6 litres at 0° C and 1 atm pressure. The gas is

(a) NO (b) N_2O (c) CO (d) CO_2

19) Total number of electrons present in 1.7 g of ammonia is

(a) 6.022 x 10^{23} (b) $\frac{6.022\times10^{22}}{1.7}$ (c) $\frac{6.022\times10^{24}}{1.7}$ (d) $\frac{6.022\times10^{23}}{1.7}$

20) The oxidation number of Cr in $Cr_2O_7^{2-}$ _____ is

(a) +6 (b) -6 (c) +7 (d) -7

21) Among the three metals, zinc, copper and silver, the electron releasing tendency decreases in the following order.

(a) zinc > silver > copper (b) zinc > copper > silver (c) silver > copper > zinc (d) copper > silver > zinc

22) Consider the following statements :

(i) Oxidation number of He = zero

(ii) Increase in oxidation number results in reduction.

(iii) The substance undergoing the increase in oxidation number is reducing agent.

Which among the above statement(s) is/are correct?

(a) only (i) (b) (ii) and (iii) (c) (i) and (iii) (d) only (ii)

23) Rusting of iron articles is an example of _____ reaction

(a) Combustion (b) decomposition (c) redox (d) hydrolysis

24) Identify disproportionation reaction

(a) $CH_4 + 2O_2 \longrightarrow CO_2 + 2H_2O$ (b) $CH_4 + 4Cl_2 \longrightarrow CCl_4 + 4HCl$ (c) $2F_2 + 2OH \longrightarrow 2F^- + OF_2 + H_2O$ (d) $2NO_2 + 2OH^- \longrightarrow NO^-_2 + NO^-_3 + H_2O$

25) The correct increasing order of the oxidation state of sulphur in the anions $SO_3^{2-}, SO_3^{2-}, S_2O_4^{2-}, S_2O_6^{2-}$

(a) $SO_3^{2-} < SO_4^{2-} < S_2O_4^{2-} < S_2O_6^{2-}$ (b) $SO_4^{2-} < SO_4^{2-} < S_2O_6^{2-} < SO_3^{2-}$ (c) $S_2O_4^{2-} < SO_3^{2-} < S_2O_6^{2-} < SO_4^{2-}$ (d) $S_2O_6^{2-} < SO$

26) The equivalent mass of ferrous oxalate is _____.

(a) $\frac{molar\ mass\ of\ ferrousoxalate}{1}$ (b) $\frac{molar\ mass\ of\ ferrousoxalate}{2}$ (c) $\frac{molar\ mass\ of\ ferrousoxalate}{3}$ (d) None of these

27) If Avogadro number were changed from 6.022 x $10^{23}$to 6.022 x 10^{20}, this would change

(a) the ratio of chemical species to each other in a balanced equation (b) the ratio of elements to each other in a compound (c) the definition of mass in units of grams (d) the mass of one mole of carbon

28) Two 22.4 litre containers A and B contains 8 g of O_2 and 8 g of SO_2 respectively at 273 K and 1 atm pressure, then

(a) Number of molecules in A and B are same (b) Number of molecules in B is more than that in A. (c) The ratio between the number of molecules in A= to number of molecules in B is 2:1 (d) Number of molecules in B is three times greater than the number of molecules in A

29) What is the mass of precipitate formed when 50 ml of 8.5 % solution of $AgNO_3$ is mixed with 100 ml of 1.865 % potassium chloride solution?

(a) 3.59g (b) 7g (c) 14 g (d) 28 g

30) The mass of a gas that occupies a volume of 612.5 ml at room temperature and pressure (25^0 c and 1 atm pressure) is 1.1g. The molar mass of the gas is

(a) 66.25 g mol^{-1} (b) 44 g mol^{-1} (c) 24.5 g mol^{-1} (d) 662.5 g mol^{-1}

31) Which of the following contain same number of carbon atoms as in 6 g of carbon-12.

(a) 7.5 g ethane (b) 8 g methane (c) both (a) and (b) (d) none of these

32) Which of the following compound(s) has /have a percentage of carbon same as that in ethylene (C_2H_4)

(a) propene (b) ethyne (c) benzene (d) ethane

33) Which of the following is/are true with respect to carbon -12

(a) relative atomic mass is 12 u (b) the oxidation number of carbon is +4 in all its compounds. (c) 1 mole of carbon-12 contain 6.022 x 10^{22} carbon atoms. (d) All of these

34) Which one of the following is used as a standard for atomic mass.

(a) $_6C^{12}$ (b) $_7C^{12}$ (c) $_6C^{13}$ (d) $_6C^{14}$

35) Assertion (A): Among halogens fluorine is the best oxidant. Reason (R): Fluorine is the most electronegative atom.

(a) Both A and R are (b) Both A and R are true but (c) A is true (d) Both A and

true and R explains A R does not explain A but R is false R are false

36) Maximum oxidation state is present in the central metal atom of which compound
(a) CrO_2Cl_2 (b) MnO_2 (c) $[Fe(CN)_6]^{3-}$ (d) MnO

37) Identify the correct statements with reference to the given reaction
$P_4 + 3OH^- + 3H_2O \longrightarrow PH_3 + 3H_2PO_2^-$
(i) Phosphorous is undergoing reduction only
(ii) Phosphorous is undergoing oxidation only
(iii) Phosphorous is undergoing both oxidation and reduction.
(iv) Hydrogen is undergoing neither oxidation nor reduction.
(a) only (iii) (b) both (iii) and (iv) (c) only (i) (d) None of these

38) The change in the oxidation number of S in H_2S and SO_2,in the following industrial reaction:
$2H_2S_{(g)} + SO_{2(g)} \longrightarrow 3S_{(s)} + H2O_{(g)}$
(a) -2 to 0, +4 to 0 (b) -2 to 0, +4 to -1 (c) -2 to -1, +4 to 0 (d) -2 to -1, +4 to -2

39) In which of the following reactions, hydrogen peroxide acts as an oxidising agent?
(a) $I_2 + H_2O_2 + 20H^- \longrightarrow 21^- + 2H_2O + O_2$
(b) $PbS + 4H_2O_2 \longrightarrow PbSO_4 + 4H_2O$
(c) $2MnO_4^- + 3H_2O_2 \longrightarrow 2MnO_2 + 3O_2 + 2H_2O + 2OH^-$
(d) $HOCl + H_2O_2 \longrightarrow H_2O^+ + Cl^- + O_2$

40) Consider the following statements
i) Matter possesses mass.
ii) 22-carat gold is a mixture.
iii) Dry ice is a compound.
Which of the following statement(s) given above is/ are correct?
(a) 1 & 3 (b) Only 1 (c) 1 & 2 (d) 1,2, & 3

41) The solid state of matter is converted into gas by
(a) sublimation (b) deposition (c) freezing (d) condensation

42) Identify the incorrect statement about a compound.
(a) A molecule cannot be separated into its constituent elements by physical methods of separation
(b) A molecule of a compound has atoms of different elements
(c) A compound retains the physical properties of its constituent element
(d) The ratio of atoms of different elements in a compound is fixed

43) The characteristic feature of orderly arrangement of molecules belongs to
(a) Solids (b) Liquid (c) Gases (d) None of these

44) 1 amu (or) 1 u ≈
(a) 1.6605×10^{-25} kg (b) 1.6605×10^{-26} kg (c) 1.6605×10^{-27} kg (d) 1.6605×10^{-28} kg

45) 12 g of carbon-12 contains_____carbon atoms
(a) 6.022×10^{23} (b) 6 (c) 12 (d) 12.022×10^{-23} kg

46) Statement I: an Equivalent mass of Mg is determined by Oxide Method
Statement II: Molecular mass is calculated using vapour density
(a) Both the statements are individually true
(b) Both the statements are individually true and statement II is the correct explanation of statement 1.
(c) Statement I is true but statement IIis false.
(d) Statement Iis false but statement IIis true

47) Atomicity of nitrogen is
(a) 1 (b) 2 (c) 3 (d) Zero

48) Assertion: An element has a fractional atomic mass.
Reason: An element exist as isotope
(a) Both assertion and reason are correct and reason is the correct explanation for the assertion
(b) Both assertion and reason are correct but reason is not the correct explanation for an assertion
(c) Assertion is true but reason is false.
(d) Both assertion and reason are false

49) The empirical formula and molecular mass of a compound are CH_2O and 180g respectively. What will be the molecular formula of the compound?
(a) $C_9H_{19}0$ (b) CH_2O (c) $C_6H_{12}O_6$ (d) $C_2H_4O_2$

50) The equivalent mass of potassium permanganate in alkaline medium is:
$MnO_4^- + 2H_2O + 3e^- \rightarrow MnO_2 + 4OH^-$
(a) 31.6 (b) 52.7 (c) 79 (d) None of these

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