CHEMISTRY

IMPORTANT QUESTION PAPER FOR NEW SYLLABUS CHEMISTRY

11th Standard - New

Chemistry Reg.No. : | | | | | | |

Time : 03:20:00 Hrs Total Marks : 166

88 x 1 = 88

1) 40 ml of methane is completely burnt using 80 ml of oxygen at room temperature The volume of gas le . a er cooling to room temperature is

(a) 40 ml CO_2 gas (b) 40 ml CO_2 gas and 80 ml H_20 gas (c) 60 ml CO_2 gas and 60 ml H_20 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

12.044×10^{23} molecules of glucose

Reason: Total number of entities present in one mole of any substance is equal to 6.02×10^{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) 6.022×10^{26} (b) 6.022×10^{23} (c) 6.022×10^{20} (d) 9.9×10^{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 22.4litre s 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 HCI (g) (b) 0.5 moles of HCI (g) (c) 1.5 moles of HCI (g) (d) 1 moles of HCI (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) $C + 2H_2 + S04 \longrightarrow CO_2 + 2SO_2 + 2H_2O$

(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) $Cl_{2(g)} + 2Kl_{(aq)} \longrightarrow 2KCl_{(aq)} + I_2$ (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) The equivalent mass of potassium permanganate in alkaline medium is
(a) 31.6 (b) 52.7 (c) 79 (d) None of these

18) Which one of the following represents 180g of water?
(a) 5 Moles of water (b) 90 moles of water (c) $\frac{6.022 \times 10^{23}}{180}$ molecules of water
(d) 6.022×10^{24} molecules of water

19) 7.5 g of a gas occupies a volume of 5.6litres at 00 C and 1 atm pressure. The gas is
(a) NO (b) N_2O (c) CO (d) CO_2

20) Total number of electrons present in 1.7 g of ammonia is
(a) 6.022×10^{23} (b) $\frac{6.022 \times 10^{22}}{1.7}$ (c) $\frac{6.022 \times 10^{24}}{1.7}$ (d) $\frac{6.022 \times 10^{23}}{1.7}$

21) The oxidation number of Cr in Cr_2O_7_____is
(a) +6 (b) -6 (c) +7 (d) -7

22) 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

23) 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)

24) Rusting of iron articles is an example of_____reaction

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

25) Identify disproportionation reaction

(a) $CH_4 + 2O_2 \longrightarrow CO_2 + 2H_2O$ (b) $CH_4 + \longrightarrow CCl_4 + 4HCl$ (c) $2F_2 + 2OH \longrightarrow 2F^- + OF_2 + H_2O$

(d) $2NO_2 + 2OH^- \xrightarrow{4Cl_2} NO_2^- + NO_3^- + H_2O$

26) Which of the following statement(s) is/are not true about the following decomposition reaction.

$2KClO_3 \longrightarrow 2KCl + 3O_2$

(i) Potassium is undergoing oxidation

(ii) Chlorine is undergoing oxidation

(iii) Oxygen is reduced

(iv) None of the species are undergoing oxidation and reduction.

(a) only (iv) (b) (i) and (iv) (c) (iv) and (iii) (d) All of these

27) Identify the correct statement(s) with respect to the following reaction :

$Zn + 2HCl \longrightarrow ZnCl_2 + H_2$

(i) Zinc is acting as an oxidant

(ii) Chlorine is acting as a reductant

(iii) Hydrogen is not acting as an oxidant

(iv) Zn is acting as a reductant

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

28) Match the list-I with list-II and select the correct answer using the code given below the lists.

List-I		List-	
A	$Cr_2O_7^{2-}$	1	+5
B	MnO_4^-	2	+6
C	VO_3^-	3	+3
D	FeF_6^{3+}	4	+7

(a)

A	B	C	D
3	1	4	2

(b)

A	B	C	D
4	3	2	1

(c)

A	B	C	D
2	4	1	3

(d)

A	B	C	D
3	2	1	4

29) Match the items in column list-I with relevant items in list-II.

List-I		List-II	
A	Ions having positive charge	1	anion
B	Ions having negative charge	2	-1
C	Oxidation number of fluorine in NaF	3	0
D	The sum of oxidation number of all atoms in a neutral	4	cation

(a)

A	B	C	D
3	4	2	1

(b)

A	B	C	D
1	2	3	4

(c)

A	B	C	D
2	3	4	1

(d)

A	B	C	D
4	1	2	3

30) 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) $S_2O_6^{2-} < SO_4^{2-} < SO_4^{2-} < SO_3^{2-}$

31) 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

32) If Avogadro number were changed from 6.022×10^{23} to 6.022×10^{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

33) Two 22.4 litre containers A and B contains 8 g of 0_2 and 8 g of $S0_2$ respectively at 273 K and 1 atm pressure, then

(a) Number of molecules inA 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

34) What is the mass of precipitate formed when 50 ml of 8.5 % solution of $AgN0_3$ is mixed with 100 ml of 1.865 % potassium chloride solution?

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

35) 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}

36) 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

37) 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

38) 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 ofcarbon-12 contain 6.022×10^{22} carbon atoms. (d) All of these

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

(a) $_{6}C^{12}$ (b) $_{7}C^{12}$ (c) $_{6}C^{13}$ (d) $_{6}C^{14}$

40) Assertion (A): Among halogens fluorine is the best oxidant.

Reason (R): Fluorine is the most electronegative atom.

(a) Both A and R are true and R explains A (b) Both A and R are true but R does not explain A

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

41) 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

42) 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

43) Assertion (A): In the reaction between potassium permanganate and potassium iodide, permanganate ions act as oxidising agent.

Reason (R): Oxidation state of manganese changes from +2 to +7 during the reaction.

(a) Both A and R are true and R explains A (b) Both A and R are true but R does not explain A

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

44) The change in the oxidation number of S in H_2S and SO_2,in the following industrial reaction:

$2H_2S_{(g)} + SO_{2(g)} \longrightarrow 3S_{(s)} + H2O_{(g)}$

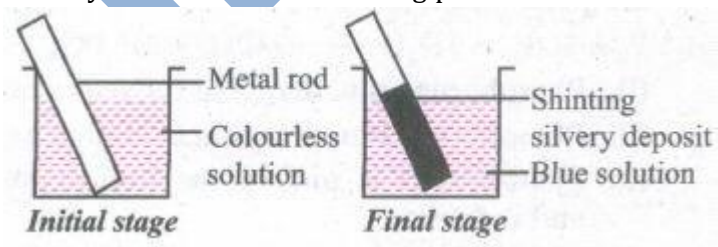
(a) -2 to 0, +4 to 0 (b) -2 to 0, +4 to -1 (c) -2 to -1, +4 to 0 (d) -2 to -1, +4 to -2

45) In which of the following reactions, hydrogen peroxide acts as an oxidising agent?

(a) $I_2 + H_2O_2 + 2OH^- \longrightarrow 2I^- + 2H_2O + O_2$ (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) $HOCl + H_2O_2 \longrightarrow H_2O + Cl^- + O_2$

46) Identify the redox reaction taking place in a beaker.



(a) $Zn_{(s)} + Cu^{2+}_{(aq)} \longrightarrow Zn^{2+}_{(aq)} + Cu_{(s)}$ (b) $Cu_{(s)} + 2Ag^{+}_{(aq)} \longrightarrow Cu^{2+}_{(aq)} + 2Ag_{(s)}$

(c) $Cu_{(s)} + Zn^{2+}_{(aq)} \longrightarrow Zn_{(s)} + cu^{2+}_{(aq)}$ (d) $2Ag_{(s)} + cu^{2+}_{(aq)} \longrightarrow 2Ag^{+}_{(aq)} + Cu_{(s)}$

47) 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

48) Match the list I with List II and select the correct answer using. the code given below the lists.

List I	List II
A Diamond	1 Heterogeneous
B Aerated	2 Element
C Distilled	3 Homogeneous mixture
D Sand	4 Compound

(a)

A	B	C	D
2	3	4	1

(b)

A	B	C	D
4	3	1	2

(c)

A	B	C	D
3	1	4	2

(d)

A	B	C	D
2	1	4	3

49) The solid state of matter is converted into gas by

(a) sublimation (b) deposition (c) freezing (d) condensation

50) 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 di erent elements

(c) A compound retains the physical properties of its constituent element

(d) The ratio of atoms of di erent elements in a compound is fixed

51) The characteristic feature of orderly arrangement of molecules belongs to

(a) Solids (b) Liquid (c) Gases (d) None of these

52) Which among the following statement(s) describe an element?

i) It is a pure substance which could be split into two or more simpler substance.

ii) It is a pure substance which cannot be split into simpler substance

iii) It's composition is not uniform

iv) All the above

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

53) Which form of based on physical characteristics possess neither definite volume nor definite shape?

(a) Solids (b) Liquids (c) Gases (d) Both (a) and (b)

54) Match list I with list II and identify the correct code.

List I	**List II**
A Bronze	1 Element
B Table Salt	2 Homogeneous
C Gold	3 Alloy
D Petrol	4 Compound

(a)

A	B	C	D
1	4	2	3

(b)

A	B	C	D
3	4	1	2

(c)

A	B	C	D
2	3	4	1

(d)

A	B	C	D
4	2	3	1

55) Atoms are too small with a diameter of 10^{-10} m and weigh approximately

(a) 10^{-27} kg (b) 10^{-27} g (c) 10^{-31} kg (d) 10^{-31}

56) 1 amu (or) 1 u $\approx$

(a) 1.6605×10^{-25} kg (b) 1.6605×10^{-26} kg (c) 1.6605×10^{-27} kg (d) 1.6605×10^{-28} kg

57) 12 g of carbon-12 contains_____carbon atoms

(a) 6.022×10^{23} (b) 6 (c) 12 (d) 12.022×10^{-23} kg

58) 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

59) The volume occupied by any gas at S.T.P. is_____

(a) 22.4litres (b) 2.24litres (c) 224 litres (d) 0.224 litres

60) One mole of Sulphuric acid contains_____oxygen atoms

(a) 4×10^{23} (b) $4 \times 6.023 \times 10^{-23}$ (c) $4 \times 6.023 \times 10^{23}$ (d) $4 \times 6.023 \times 10^{32}$

61) Unit of Avogadro's number is

(a) $\frac{\text{mol}}{1}$ (b) g (c) mol^{-} (d) No unit

62) Atomicity of nitrogen is

(a) 1 (b) 2 (c) 3 (d) Zero

63) 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

64) The empirical formula and molecular mass of a compound are CH_20 and 180g respectively. What will be the molecular formula of the compound?

(a) $C_9H_{19}0$ (b) CH_2O (c) $C_6H_{12}0_6$ (d) $C_2H_4O_2$

65) One 'U' stands for the mass of

(a) An atom of carbon-12 (b) $1/12^{th}$ of the carbon-12 (c) 1/12th of a hydrogen atom

(d) One atom of any of the element

66) What will be the basicity of H_3B0_3, which is not a protic acid?

(a) One (b) Two (c) Three (d) Four

67) In the reaction to $NH_3 + H_2O \longrightarrow NH_4^+ + OH$, NH$_3$ is acidic in. the reason for its acidic is____

(a) Acceptance of one $H^+$from water (b) A release of one OH^-ion (c) Due to the nitrogen atom

(d) All the above

68) Match the following prefixes with their multiples.

Equivalent Mass(E)		Molecular Mass (M)	
A	E_{kMnO4} (Acidic)	1	M/2
B	E_{kMnO4} (Neutral)	2	M
C	E_{H3PO2}	3	M/3
4	E_{H3PO3}	4	M/5

(a)

A	B	C	D
4	3	2	1

(b)

A	B	C	D
4	2	1	3

(c)

A	B	C	D
3	4	2	1

(d)

A	B	C	D
3	1	4	2

69) Calculate the percentage of N in ammonia molecule.

(a) 121.42% (b) 28.35% (c) 82.35% (d) 28.53%

70) If a beaker holds 576g of water, what will be the gram molecules of water in that beaker?

(a) 23 gram molecule (b) 23% (c) 32% (d) 32 gram molecule

71) Assertion: The atomic masses of most of the elements. are in the fraction.

Reason: The atomic mass represents the ratio of the average mass of the atom to one avogram.

(a) Both assertion and reason are correct and the reason is the correct explanation for assertion

(b) Both assertion and reason are correct but the reason is not the correct explanation for an assertion

(c) Assertion is true but reason are false (d) Both assertion and reason are false

72) Assertion: The number of oxygen atoms in 16g of oxygen and 16g of ozone is same Reason Each of the species represent 1g atom of oxygen

(a) Both assertion and reason are correct and the reason is the correct explanation for an assertion

(b) Both assertion and reason are correct but a reason is not the correct explanation for assertion

(c) Assertion is true but reason are false. (d) Both assertion and reason are false

73) Assertion: The ash produced by burning paper in air is lighter than the original mass of paper.

Reason: he residue le a er combustion of a chemical entity is always lighter

(a) Both assertion and reason are correct and reason is the correct explanation for assertion.

(b) Both assertion and reason are correct but reason is not the correct explanation for assertion

(c) Assertion is true but reason are false (d) Both assertion and reason are false

74) Assertion: Oxalic acid is a dibasic acid Reason: It contains two basic radicals

(a) Both assertion and reason are correct and reason is the correct explanation for assertion.

(b) Both assertion and reason are correct but reason is not the correct explanation for assertion

(c) Assertion is true but reason are false (d) Both assertion and reason are false

75) How many moles of magnesium phosphate $Mg3(PO_4)_2$ Will Contain 0.25 moles of oxygen atoms?

(a) 0.02 (b) 3.125×10^{-2} (c) 1.25×10^{-2} (d) 2.5×10^{-2}

76) Assertion: Equal volumes of all the gases do not contain equal number of atoms Reason: Atom is the smallest particle which takes part in chemical reactions.

(a) Both assertion and reason are correct and reason is the correct explantion for assertion

(b) Both assertion and reason are correct but reason is not the correct explantion for assertion

(c) Assertion is true but reason are false (d) Both assertion and reason are false

77 Match the list I with List II and select the correct answer using. the code given below the

List-I		List -II	
A	N	1	6.02×10^{23} Ne atoms
B	Vapour Density	2	0.01 moles of solute in one L of
C	22.4 L at S.T.P	3	Molecular masss/2
D	Centimolar	4	molecular mass/epirical formula mass

(a)

A	B	C	D
2	3	4	1

(b)

A	B	C	D
4	3	1	2

(c)

A	B	C	D
3	1	4	2

(d)

A	B	C	D
2	1	4	3

78) A compound has an empirical formula C_2H_40. If the value of n = 2 the molecular formula of the compound is_____

(a) C_2H_4O (b) CH_2O (c) CH_2 (d) $C_4H_8O_2$

79) Give an example of molecule in which the ratio of the molecular formula is six times the empirical formula.

(a) $C_6H_{12}O_6$ (b) CH_2O (c) CH_4 (d) NA_2CO_3

80) Two elements X and Y (atomic mass of X = 75; Y = 16) combine to give a compound having 76% of X. The formula of the compound is?

(a) XY (b) X_2Y (c) X_2Y_2 (d) X_2Y_3

81) The compound in which mass percentage of carbon is 75% and that of hydrogen is 25% is

(a) C_6H_2 (b) C_2H_2 (c) CH_4 (d) C_2H_4

82) Equal volume of N_2 and H_2 react to form ammonia under suitable condition then the limiting reagent is

(a) H_2 (b) N_2 (c) NH_3 (d) No Reactant is a limiting regent

83) What is the ratio of empirical formula mass to molecular formula mass of benzene?

(a) 1:6 (b) 6:1 (c) 2:3 (d) 3:2

84) Limiting regent in a chemical reaction is that reactant which

(a) le some a mount unreacted a er the completion of reaction (b) reacts completely in the reaction

(c) does not react in the reaction (d) All of these

85) If ten volumes of dihydrogen gas react with five volumes of dioxygen gas, how many volumes of water vapour would be produced?

(a) 1 (b) 2 (c) 5 (d) 10

86) Match the list-I with list-II and select the correct answer using the code given below the lists

List-I		List-II	
A	Molecular formula	1	Completely consumed
B	Stoichiometric	2	Le unreacted
C	Limiting reagent	3	n x Empirical formula
D	Excess reagent	4	Balanced equation

(a)

A	B	C	D
3	4	2	1

(b)

A	B	C	D
3	4	1	2

(c)

A	B	C	D
4	3	1	2

(d)

A	B	C	D
4	3	1	2

87) Assertion: When 4 moles of H_2 reacts with 2 moles of O_2 then 4 moles of water is formed. Reason: O_2 will act as limiting reagent.

(a) Both assertion and reason are true and reason is the correct explanation of assertion

(b) Both assertion and reason are true but reason is not the correct explanation of assertion.

(c) Only assertion is true but reason is false (d) Both assertion and reason are false.

88) Assertion: $KAlS_2H_{12}O_{20}$ is the empirical formula of potash alum. Reason: It is a double salt.

(a) Both assertion and reason are correct and reason is the correct explanation for assertion

(b) Both assertion and reason are correct but reason is not the correct explanation for assertion

(c) Assertion is true but reason are false (d) Both assertion and reason are false

$160 \times 3 = 480$

89) Classify the following species into acids and bases according to Lewis concept. S^{2-}, H^+, OH^-, BF_3' Ni^{2+}, F^-

90) MnO_4^{2-} undergoes disproportionation reaction in acidic medium but MnO_4^- does not. Give reason.

91) Categorise the redox reactions that occur in our daily life

92) $2Cu_2S + 3O_2 \longrightarrow 2Cu_2O + 2SO_2$

(i) In this reaction which substance is getting oxidised and which substance is getting reduced?

(ii) Name the oxidising and reducing agents.

93) How would you know whether a redox reaction is taking place in an acidic, alkaline or neutral medium?

94) What is the most essential conditions that must be satisfied in a redox reaction?

95) Why is anode called oxidation electrode, whereas the cathode is called reduction electrode?

96) Zn rod is immersed in $CuSO_4$ solution. What will you observe a er an hour? Explain you observation in terms of the redox reaction.

97) Nitric acid is an oxidising agent and reacts with PbO but it does not react with PbO_2 Explain why?

98) Which one of the two, ClO_2^- or ClO_4^- shows disproportionation reaction and why?

99) Consider the reactions,

(i) $H_3PO_{2(aq)} + 4AgNO_{3(aq)} + 2H_2O_{(l)} \longrightarrow H_3PO4_{(aq)} + 4Ag_{(s)} + 4HNO_{3(aq)}$

(ii) $H_3PO_{2(aq)} + 2CuSO_{4(aq)} + 2H_2O_{(l)} \longrightarrow H_3PO4_{(aq)} + 2Cu_{(s)} + H_2SO_{4(aq)}$

(iii) $C_6H_5CHO_{(l)} + 2[Ag(NH_3)_2]^+_{(aq)} + 3OH^-_{(aq)} \longrightarrow C_6H_5COO^-(aq) + 2Ag(s) + 4NH_{3(aq)} + 2H_2O_{(l)}$

(iv) $C_6H_5CHO_{(l)} + 2Cu^{2+}_{(aq)} + OH^-_{(aq)} \longrightarrow$ No change observed.

What interference do you draw about the behavior of Ag^+ and Cu^{2+} from these reactions?

100) 'X' is an impure substance. Is it an element, compound or mixture?

101) What are the basic properties used to identify a substance?

102) Why is distilled water a compound whereas tap water is a mixture?

103) Mixture of salt and water is a solution while that of oil and water is not. Explain

104) Why is air sometimes considered as a heterogeneous mixture?

105) By applying the knowledge of chemical classification, classify each of the following into elements, compounds or mixtures
   (i) Sugar
   (ii) Sea water
   (iii) Distilled water
   (iv) Carbon dioxide
   (v) Copper wire
   (vi) Table salt
   (vii) Silverplate
   (viii) Naphthalene balls
106) Matter is defined as anything that has mass and occupies space. All matter is composed of atoms
107) Write a note on the di erences between elements and compounds
108) Write a note on 'mixture' based on the chemical classification of matter.
109) How will you classify matter based on physical state?
110) Explain the classification of matter based on chemical composition.
111) Draw a flow chart to illustrate classification of matter.
112) Calculate the number of atoms in the following.52 g of He
113) Calculate the number of atoms in the following.52 moles of He.
114) Calculate the mass of the following: 1 atom of silver
115) Calculate the mass of the following: 1 molecule of benzene
116) Calculate the mass of the following: 1 molecule of water.
117) One million silver atoms weigh 1.79×10^{-16} g. Calculate the atomic mass of silver.
118) How much mass (in gram units) is represented by the following?
   0.2 mol of NH_3
119) How much mass (in gram units) is represented by the following?
   3.0 mol of CO_2
120) How much mass (in gram units) is represented by the following?
   5.14 mol of H_5IO_6
121) Calculate the Formula Weights of the following compounds.NO_2
122) Calculate the Formula Weights of the following compounds.$C_6H_{12}O_6$ - Glucose
123) Calculate the Formula Weights of the following compounds.NaOH
124) Calculate the Formula Weights of the following compounds.$Mg(OH)_2$
125) Calculate the oxidation number of nitrogen in nitrous acid and nitric acid
126) How many moles of barium sulphate is precipitated when 1 mole of aluminium sulphate reacts completely with barium chloride?
127) Calculate the mass of the atom in amu

128) Calculate the oxidation number of underlined atoms of the following: $K_2\underline{Mn}O_4$

129) Calculate the oxidation number of underlined atoms of the following: $K_2\underline{Cr}O_4$

130) Calculate the oxidation number of underlined atoms of the following: $\underline{N}O_3^-$

131) What mass of N_2 will be required to produce 34g of NH_3 by the reaction, $N_2 + 3H_2 \longrightarrow 2NH_3$.

132) Calculate the equivalent weight of H_3PO_4 and $Ca(OH)_2$ on the basis of given reaction.

$H_3PO_4 + NaOH \longrightarrow NaH_2PO_4 + H_2O$

$Ca(OH)_2 + HCl \longrightarrow Ca(OH)Cl + H_2O$

133) Calculate the gram molecular mass of sugar having molecular formula $C_{12}H_{22}O_{11}$

134) Calculate (a) The mass of 0.5g molecule of sugar and (b) Gram molecule of sugar in 547.2 g

135) Define Avogadro number

136) Define molar volume

137) State Avogadro's hypothesis.

138) Define atomicity.

139) Which law co-relates the mass and volume of a gas?

140) Does one gram mole of a gas occupy 22.4 Lunder all conditions of temperature and pressure

141) Bring about the dissimilarities in mole concept and molar mass by clearly analysing them

142) (i) If an acid is mono basic, how will you relate their equivalent mass and molecular mass.

(ii) What is the basicity of $H_4P_2O_7$?

(iii) Give any two examples for dibasic acids.

143) Why are the atomic mass of most of the elements fractional?

144) Write down the formulae for calculating the equivalent mass of an acid, base and oxidizing agent.

145) 1.05g of a metal gives on oxidation 1.5g of its oxide. Calculate its equivalent mass.

146) Calculate Equivalent mass of the Hydrochloric acid

147) Calculate Equivalent mass of the Nitric acid

148) Calculate Equivalent mass of the Acetic acid

149) Calculate Equivalent mass of the Crystalline oxalic acid

150) Calculate Equivalent mass of the Phosphorous acid

151) Calculate the number of moles in the following 7.85 g of copper

152) Calculate the number of moles in the following 4.66 mg of silicon

153) Calculate the number of moles in the following 65.6 mg of oxygen

154) What will be the molecular formula for the compound, whose empirical formula is CH_2CI and molar mass is 98.96 g?

155) A compound on analysis was found to contain C = 34.6%; H = 3.85% and O = 61.55%. Calculate its empirical formula.

156) Balance the following reaction by oxidation number method.

157) Calculate equivalent mass of the Sodium hydroxide

158) Calculate equivalent mass of the Aluminium hydroxide

159) Calculate equivalent mass of the Ammonium hydroxide

160) Calculate equivalent mass of the Calcium hydroxide

161) Calculate equivalent mass of the Magnesium hydroxide

162) Calculate the equivalent mass of potassium dichromate in acid medium $[K_2Cr_20_7 + 4H_2SO_4) \rightarrow K_2SO_4 + Cr_2(SO_4)_3 +_4H_20 + 3(O)$ 3 x 16 = 48 294 g]

163) 3.24g of titanium reacts with oxygen to form 5.40g of the metal oxide. Find the empirical formula of the metal oxide?

164) A compound contains 1l.99 % N, 13.70 % 0, 9.25 % B and 65.06 % F. Find its empirical formula

165) A organic compound used for welding operation contains the following composition by mass: C = 92.3%, H= 7.7%. Find out the molecular formula of the compound. At STP, 10.0 L of this gas is found to weigh 11.6g.

166) The organic compound Vitamin-C, has the following composition by mass: 40.92% C, 4.58% H, and the rest is oxygen. Determine its molecular formula. Molar mass of the substance is 176 g mol^{-1}

167) A piece of cut apple becomes brown. Why? Can you prevent it by a simple method

168) Place an iron piece in a moist atmosphere and observe it a er two days. Is there any deposition of new substance? Why does it happen? What is this phenomenon called?

169) An iron nail is placed in copper sulphate solution taken in the beaker. Observe it for some time?Find the changes that takes place and why?

170) Calculate the oxidation number of underlined atoms K_2MnO_4

171) Define stoichiometry.

172) The percentage of all the elements present o in a compound is 95. What does it indicate?

173) Why is it necessary to balance a chemical equation?

174) What do you understand by stoichiometric coe icients in a chemical equation?

175) The reactant which is entirely consumed in reaction is known as limiting reagent. In the reaction 2A + 4B $\rightarrow$ 3C + 4D, when 5 moles of A react with 6 moles of B, then

(i) Which is the limiting reagent

(ii) Calculate the amount of C formed.

176) What is the simplest formula of the compound which has the following percentage composition? C = 80%; H = 20%

177) How are 0.5 mol Na_2CO_3 and 0.50 M Na_2CO_3 di erent?

178) Write the simplest formula for the following. - N_2O_4

179) Write the simplest formula for the following. - $C_6H_{12}O_6$

180) Write the simplest formula for the following. - H_2O

181) Write the simplest formula for the following. - H_2O_2

182) Elucidate the steps involved in arriving at the molecular formula of a compound.

183) Calculate the molecular mass of the following $KMnO_4$

184) Calculate the molecular mass of the following Crystalline oxalic acid

185) Calculate the molecular mass of the following Methane

186) Calculate the oxidation number of underlined atoms $H_4P_2O_7$

187) Calculate the oxidation number of underlined atoms $C\,lO_3^-$

188) Calculate the oxidation number of underlined atoms $A\,sO_3^{3-}$

189) Calculate the oxidation number of underlined atoms S_2O_3

190) Calculate the oxidation number of underlined atoms $C_6H_{12}O_6$

191) Calculate the oxidation number of underlined atoms $Na_2[F\,e(CN)_6]$

192) Calculate the number of atoms/molecules present in the following: 10 g of Hg

193) Calculate the number of atoms/molecules present in the following 1.8g of water

194) Calculate the number of atoms/molecules present in the following 100g of sulpur dioxide

195) Calculate the number of atoms/molecules present in the following 1Kg of acetic acid

196) The approximate production of Na_2C0_3 per month is 424 x 10^6gwhile that of methyl alcohol is 320 x 10_6g. Which is produced more in terms of moles?

197) Calculate number of moles of carbon atoms in three .moles of ethane.

198) Find the molecular mass of $FeSO_47H_2O$.

199) Calculate the number of moles present in the following 50g of calcium chloride

200) Calculate the number of moles present in the following 120g of sodium hydroxide

201) Calculate the number of moles present in the following 46g of ethanol

202) Calculate the number of moles present in the following 90 g of magnesium oxide

203) Calculate the number of moles present in the following 19.5g of potassium

204) The density of CO_2 =1.977kgm^{-3} at STP. Calculate t he molecular mass of CO_2

205) How many moles of glucose are present in 720g of glucose

206) Calculate the weight of 0.2 mole of sodium carbonate.

207) Calculate the equivalent mass of bicarbonate ion.

208) Calculate the molar volume of the following 88 g of CO_2

209) Calculate the molar volume of the following 5 moles of methane

210) Calculate the molar volume of the following 460g of formic acid

211) Calculate the molar volume of the following 3.0115 $\times$ 10^{23} molecules of SO_2 gas

212) Calculate the equivalent mass of the following: Zn

213) Calculate the equivalent mass of the following: nitrate ion (NO_3^-)

214) Calculate the equivalent mass of the following: Sodium

215) 0.456 g of a metal gives 0.606g of its chloride Calculate its equivalent mass

216) Decide whether each of the following reaction involves oxidation reduction reaction or not. If it does,identify which species is oxidised and which gets oxidised?

$$4CH_3-\overset{\overset{O}{||}}{C}-CH_3 + LiAlH_4 = 4H_2O \rightleftharpoons 4CH_3-\overset{\overset{OH}{|}}{CH}-CH_3 + LiOH + Al(OH)_3$$

217) Decide whether each of the following reaction involves oxidation reduction reaction or not. If it does ,identify which species is oxidised and which gets oxidised?

$$CH_3CH_2OH \xrightarrow{H_2SO_4} CH_2 = CH_2 + H_2O$$

218) Decide whether each of the following reaction involves oxidation reduction reaction or not. If it does , identify which species is oxidised and which gets oxidised ?

$$CH_3 - \overset{O}{\overset{||}{C}} - OH + CH_3NH_2 \rightleftharpoons CH_3 - \overset{O}{\overset{||}{C}} - O^- + CH_3NH_3^+$$

219) Calculate the equivalent mass of barium hydroxide

220) Boric acid, H_3BO_3 is a mild antiseptic and is o en used as an eye wash. A sample contains 0.543 mol H_3B0_3. What is the mass of boric acid in the sample.

221) A compound contains 50% of X (atomic mass 10) and 50% Y (atomic mass 20). Give its molecular formula.

222) Determine the empirical formula of a compound containing K = 24.75%, Mn = 34.77% and rest is oxygen

223) Identify the type of redox reaction taking place in the following

$$3M^0g_{(s)} + N^0_{2(g)} \longrightarrow \overset{+2}{Mg_3}\overset{-3}{N^{2}}{}_{(s)}$$

224) Identify the type of redox reaction taking place in the following

$$\overset{+5}{Y_2}\overset{-2}{O_5}{}_{(s)} + 5\overset{0}{Ca}{}_{(s)} \longrightarrow 2\overset{0}{V}{}_{(s)} + 5\,\overset{+2}{Ca}\overset{-2}{O}{}_{(s)}$$

225) Identify the type of redox reaction taking place in the following

$$\overset{+1}{2}\overset{+5}{K}\overset{-2}{Cl}O_{3(s)} \longrightarrow 2\overset{+1}{K}\overset{-1}{Cl}{}_{(s)} + \overset{0}{3O_2}(g)$$

226) Identify the type of redox reaction taking place in the following

$$\overset{0}{Ca}{}_{(s)} + 2\,\overset{+1}{H_2}\overset{-2}{O}{}_{(l)} \longrightarrow \overset{+2}{Ca}\overset{-2}{(0H)}{}_{2(aq)} + \overset{0}{H_2}{}_{(g)}$$

227) Identify the type of redox reaction taking place in the following

$$Br_{2(1)} + 2I_{(aq)} \longrightarrow 2Br^-_{(aq)} + I_{2(s)}$$

228) Identify the type of redox reaction taking place in the following

$$\overset{0}{Cl_2}{}_{(g)} + 2OH^-_{(aq)} \longrightarrow \overset{-1}{ClO^-}{}_{(aq)} + \overset{-1}{Cl^-}{}_{(aq)} + H_2O_{(l)}$$

229) $K_2Cr_2O_7 + KI + H_2SO_4 \rightarrow K_2SO_4 + Cr2(SO_4)_3 + I_2 + H_2O$

230) $KMnO_4 + Na_2SO_3 \rightarrow MnO_2 + Na_2SO_4 + KOH$ (Alkaline medium)

231) $K_2Cr_2O_7 + KCI + H_2SO_4 \rightarrow KHSO_4 + CrO_2CI_2 + H_20$

232) $Cu + HNO_3 \rightarrow Cu(NO_3)_2 + NO_2 + H_2O$

233) What will be oxidation number of sulphur in $S_2O_8^{2-}$ ions and $S_2O_6^{2-}$ ion?

234) $P + HNO_3 \rightarrow H_3PO_4 + NO_2 + H_2O$

235) $P + 5HNO_3 \rightarrow H_3PO_4 + 5NO_2 + H_2O$

236) $H_2C_2O_4 + KMnO_4 + H_2SO_4 \rightarrow H_2SO_4 + MnSO_4 + CO_2 + H_2O$

237) $CuO + NH_3 \rightarrow Cu + N_2 + H_2O$

238) $Zn + HNO_3 \rightarrow Zn(NO_3)_2 + NH_4NO_3 + H_2O$

239) $MnO^-_4 + Sn^{2+} \rightarrow Mn^{2+} + Sn^{4+}$

240) $\underset{2-}{MnO_4} \rightarrow \underset{2-}{MnO_4} + MnO_2$

241) $MnO_4^- + Fe^{2+} \rightarrow Mn^{2+} + Fe^{3+}$

242) $S_2O_3^{2-} + I_2 \rightarrow S_2O_6^{2-} + I^-$

243) a) 0.456 g of a metal gives 0.606 g of its chloride. Calculate the equivalent mass of the metal.

b) Calculate the equivalent mass of potassium dichromate. The reduction half-reaction in acid medium is $Cr_2O_7^{2-} + 14H^+ + 6e^- \rightarrow 2Cr^{3+} + 7H_2O$

244) Experimental analysis of a compound containing the elements x,y,z on analysis gave the following data.

x = 32 %, y = 24 %, z = 44 %. The relative number of atoms of x, y and z are 2, 1 and 0.5, respectively. (Molecular mass of the compound is 400 g) Find out.

i) The atomic masses of the element x,y,z.

ii) Empirical formula of the compound and

iii) Molecular formula of the compound

245) The balanced equation for a reaction is given below $2x + 3y \rightarrow 4l + m$ When 8 moles of x react with 15 moles of y, then

i) Which is the limiting reagent?

ii) Calculate the amount of products formed.

ill) Calculate the amount of excess reactant le at the end of the reaction

246) $C_2O_4^{2-} \rightarrow Cr^{3+} + CO_2 + Cr_2O_7^{2-}$

247) $S_2O_3^{2-} + I_2 \rightarrow S_2O_4^{2-} + I^-$

248) $Sb^{3+} + MnO_4^- \rightarrow Sb^{5+} + Mn^{2+}$

36 x 5 = 180

249) Define relative atomic mass.

250) What do you understand by the term mole

251) Define equivalent mass

252) What do you understand by the term oxidation number?

253) Distinguish between oxidation and reduction.

254) Calculate the molar mass of the following compounds. - urea $[CO(NH_2)_2]$

255) Calculate the molar mass of the following compounds. - acetone $[CH_3\ COCH_3]$

256) Calculate the molar mass of the following compounds. -boric Acid $[H_3BO_3]$

257) Calculate the molar mass of the following compounds. -Sulphurci Acid $[H_3BO_3]$

258) The density of carbon dioxide is equal to 1.965 kgm^{-3} at 273 K and 1 atm pressure. calculate the molar mass of CO_2

259) Which contains the greatest number of moles of oxygen atoms

i) 1 mol of ethanol

ii) 1 mol of formic acid

iii) 1 mol of H_2O

260) Calculate the average atomic mass of naturally occurring magnesium using the following data

Isotope	Istopic atomic mass	Abundance(%)
Mg^{24}	23.99	78.99
Mg^{26}	24.99	10.00
Mg^{25}	25.98	11.01

261) In a reaction $x + y + Z_2 \longrightarrow xyz_2$ identify the Limiting reagent if any, in the following reaction mixtures.

(a) 200 atoms of x +200 atoms of y + 50 molecules of z_2

(b) 1 mol of x + 1 mol of y + 3 mol of z_2

(c) 50 atoms of x + 25 atoms of y + 50 molecules of z_2

(d) 2.5 mol of x + 5 mol of y + 5 mol of z_2

262) Mass of one atom of an element is 6.645×10^{-23}g. How many moles of element are there in 0.320 kg.

263) What is the di erence between molecular mass and molar mass? Calculate the molecular mass and molar mass for carbon monoxide.

264) What is the empirical formula of the following?

i) Fructose ($C_6H_{12}O_6$) Found in honey

ii) Ca eine ($C_8H_{10}N_4O_2$) a substance found in tea and Co ee

265) The reaction between aluminum and ferric oxide can generate temperatures up to 3273 K and is used in welding metals. (Atomic mass of AI = 27 u atomic mass of O = 16 u)

$2Al + Fe_2O_3 \longrightarrow Al_2O_3 + 2Fe$; If in this process, 324 g of aluminum is allowed to react with 1.12 kg of ferric oxide

i) Calculate the mass of Al_2O_3 formed

ii) How much of the excess reagent is le at the end of the reaction?

266) How many moles of ethane is required to produce 44 g of $C02_{(g)}$ a er combustion

267) Hydrogen peroxide is an oxidising agent. It oxidises ferrous ion to ferric ion and reduced itself to water. Write a balanced equation.

268) Calculate the empirical and molecular formula of a compound containing 76.6% carbon, 6.38 % hydrogen and rest oxygen its vapour density is 47

269) A Compound on analysis gave Na = 14.31% S = 9.97% H= 6.22% and 0= 69.5% calculate the molecular formula of the compound if all the hydrogen in the compound is present in combination with oxygen as a water of crystallization. (molecular mass of the compound is 322).

270) Write note on combination reaction.

271) Write note on decomposition reaction

272) Explain displacement reaction.

273) What are disproportionation reaction?

274) Arrange the elements silver, Zinc and copper in the order of their decreasing electron releasing tendency and justify your arrangement with an appropriate experiment.

275) Distinguish between the following.

(i) Atomic and molecular mass

(ii) Atomic mass and atomic weight

(iii) Empirical and molecular formula

(iv) Moles and molecules.

276) In a reaction, $A + B_2 \longrightarrow AB_2$, identify the limiting reagent if any in the following reaction mixtures

(i) 300 atoms of A + 200 molecules of B

(ii) 2 moles of A + 3 moles of B

(iii) 100 atoms of A + 100 molecules of B

(iv) 5 moles of A + 2.5 moles of B

(v) 2.5 moles of A + 5 moles of B

277) Balance the following equations by ion electron method -

$$KMnO_4 + SnCl_2 + HCI \longrightarrow MnCI_2 + SnCI_4 + H_2O + KCI$$

278) Balance the following equations by ion electron method - $C_2O_4^{2-} + Cr_2O_7^{2-} \longrightarrow Cr^{3+} + CO_2$ (in acid medium)

279) Balance the following equations by ion electron method $Na_2S_2O_3 + I_2 \longrightarrow Na_2S_4O_6 + NaI$

280) Balance the following equations by ion electron method $Zn + NO_3^- \longrightarrow Zn^{2+} + No$

281) Balance the following equations by oxidation number method -

$$K_2Cr_2O_7 + KI + H_2SO_4 \longrightarrow K_2SO_4 + Cr_2(SO_4) + I_2 + H_2O$$

282) Balance the following equations by oxidation number method -
$KMno_4 + Na_2So_3 \longrightarrow MnO_2 + Na_2So_4 + KOH$

283) Balance the following equations by oxidation number method -

$$Cu + HNO_3 \longrightarrow Cu\left(No_3\right)_2 + No_2 + H_2O$$

284) Balance the following equations by oxidation number method -
$KMnO_4 + H_2C_2O_4 + H_2SO_4 \longrightarrow K_2SO_4 + MnSO_4 + CO_2 + H_2O$

****

A.MOORTHY.MSC,B.Ed,
NEET TRAINER
Ce ACADEMY
CHENNAI-40
8754706647
Mpchem6@gmail.com