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1) The number of moles of CO_2 that contain 16g of oxygen.
(a) 0.25   (b) 0.50   (c) 0.75   (d) 1.0

2) Which of the following is not used for ionic compounds?
a) Formula unit   (b) empirical formula   (c) molecular formula   (d) formula mass

3) The relative mass of two moles of chlorine gas.
(a) 142g   (b) 71g   (c) 35.5g   (d) 18.75g

4) The volume occupied by 1.4 gm N_2 at S.T.P is:
(a) 2.24 dm^3 (b) 22.4 dm^3 (c) 1.12 dm^3 (d) 112 Cm^3

5) Which one has maximum number of isotopes.
(a) oxygen   (b) chlorine   (c) tin   (d) Hydrogen

6) Isotopes differ in:
(a) No. of protons   (b) No of Neutrons   (c) No of electrons   (d) none

7) Mass spectrometer separates isotopes in analyzer according.
(a) Charge   (b) Mass   (c) e/m   (d) m/e

8) The mass of 2 mole of sodium hydroxide will be
(a) 2 g   (b) 20 g   (c) 40 g   (d) 80 g

9) Which term is used for the mass of chlorine.
(a) atomic weight   (b) mass number   (c) Average atomic mass   (d) relative atomic mass

10) Which is not a mono isotopic element?
a) Fluorine   b) Iodine   c) Gold   d) Nitrogen

11) Which pair has same number of protons, electrons and neutrons
(a) N_2 & CO   (b) N_2 & CO_2 (c) NO_2 & CO   (d) NO_2 & CO_2

12) Which of the following is not molecular ion
(a) NH^{+1} (b) CO^+ (c) N^{+2} (d) NH^{+1}

13) Height of peak in mass spectrum shows
(a) Number of isotopes   (b) Mass number   (c) Relative abundance   (d) Charge on Isotopes

14) Which of the following has highest %age of Oxygen
(a) CH_3OH (b) CH_2O_5H (c) H_2O (d) HCOOH

15) The number of atoms in molecule
(a) Atomicity   (b) Avogadro's   (c) Mole   (d) Molecularity

16) 3 moles of NH_3 is equals to?
(a) 67.3 dm^3 (b) 18 dm^3 (c) 1 dm^3 (d) None of them

17) The electrometer is also called
a) Spectrometer   b) Photometer   c) Ion collector   d) Analyzer

18) Which vitamin is present in Ascorbic acid?
a) vitamin B complex   b) vitamin C   c) vitamin D   d) vitamin A

19) How many moles of water are present in 36g of water?
a) 1   b) 2   c) 3   d) 4

20) How many molecules of glucose are present 90g of glucose?
a) 6.02×10^{23} b) 3×10^{23} c) 12.02×10^{23} d) 1.5×10^{23}

21) What is the mass of 10^{-3} moles of $MgSO_4$?
a) 1.2g   b) 0.12 g   c) 12g   d) 1.5g

22) Pressure in vaporizing chamber in mass spectrometer in torr is
a) 10^{-5} to 10^{-6} b) 10^{-6} to 10^{-7} c) 10^5 to 10^7 d) 10^5 to 10^6

23) According to X-rays diffraction diameter of an atom is
a) 2×10^{10} m   b) $2 A^0$ c) 0.2nm   d) All

24) Which of the following statements is not true?
a) Isotopes with even atomic masses are comparatively abundant. . b) Isotopes with even atomic masses and odd atomic numbers are comparatively abundant.
c) Isotopes with even atomic masses and odd atomic numbers are comparatively abundant **d) Isotopes with odd atomic masses are comparatively abundant.**

25) The number of moles of CO_2 which contain 8.0g of oxygen
(a) 1   (b) 1.5   (c) 0.25   (d) 0.50

26) One mole of SO_2 contains:
a) 6.02×10^{23} atom of oxygen   b) 18.1×10^{23} molecules of SO_2 **c) 6.02×10^{23} atoms of Sulphur**   d) 4g of atoms of SO_2

27) A limiting reactant is the one which:
a) Is taken in lesser quantity in grams as compared to other reactions.   b) Is taken in lesser quantity in volume as compared to the other.
c) Carries the maximum amount of the product which is required.   d) Gives the minimum amount of the product under consideration.

28) Many elements have fractional atomic masses. This is because
a) Atomic masses are average masses of isobars   b) Atomic masses are average masses of isotopes   c) Mass of atom is itself fractional
d) Atomic masses are average masses of isotopes proportional to their relative abundance.

29) Which are building blocks of matter?
a) Elements   b) Ions   c) Molecules   d) Atoms

30) Metals undergo loss of electrons & gain:
a) Positive charge   b) Negative charge   c) Neutral   d) 'a' & 'b'

31) One amu is equal to:
(a) 1.661×10^{27} kg   **(b) 1.661×10^{-27} kg**   (c) 1.661×10^{-24} kg   (d) 1.661×10^{-27} gm

32) A compound contains 50% Sulphur and 50% oxygen by mass, Empirical formula:
(a) SO_2 (b) SO_3 (c) S_2O_3 (d) SO

33) Which has maximum mass:
(a) 20 gm P   (b) 5 moles of H_2O (c) 12×10^{24} atoms of H   (d) 2 mole Na_2CO_3

34) How many carbon atoms are present in 90gm glucose:
(a) 6.02×10^{23} (b) 1.80×10^{23} (c) 1.8×10^{22} **(d) 1.8×10^{24}**

35) 27 g is the mass of element of 1 mole. The element is:
(a) Mg   (b) Al   (c) Cu   (d) Cr

36) Mass of one mole of chlorine gas is:
(a) 32 gm   (b) 35.5 gm   (c) 71 gm   (d) 46 gm

37) The number of atoms present in 0.5 moles of Na is:
(a) 1×10^{23} (b) 6.02×10^{23} (c) 2.04×10^{23} **(d) 3.01×10^{23}**

38) Which contains maximum number of atoms:
(a) 6 moles S   (b) 2 mole Sr   (c) 5 moles SO_2 (d) 44.8 dm^3 of CO_2

39) The volume occupied by 1.6 gm of O_2 at STP is:
(a) 22.4 dm^3 (b) 2.24 dm^3 **(c) 1.12 dm^3**   (d) 112 dm^3

40) 1 mole of glucose has------------------ atoms of C.
(a) 2NA   (b) 6NA   (c) 12NA   (d) 10NA

41) **Which rays are passed through molecules to convert into molecular ions?**
    a) X-rays   b) Alpha rays   c) <u>Both 'a' & 'b'</u>   d) Beta rays

42) **Atomic mass of an element is determined with reference to C atom & expressed in:**
    a) Grams   b) Moles   <u>c) amu</u>   d) mg

43) **Fractional atomic masses can be calculated from:**
    a) <u>Relative abundance of isotopes</u>   b) Reference to C isotope   c) Given mass of isotope   d) None

44) **A molecular substance can be represented by its:**
    a) Molecular formula   b) Empirical formula   <u>c) Both 'a' & 'b'</u>   d) Combustion analysis

45) **Which technique is suitable to determine empirical formula of a substance?**
    a) X-rays spectroscopy   b) Mass spectrography   c) X-rays diffraction   d) <u>combustion analysis</u>

46) **Concept of molar volume is applicable to**
    a) <u>gases</u>   b) Liquids   c) Solids   d) Both 'a' & 'b'

47) **Which is suitable for a limiting reactant?**
    a) Partially consumed   b) Doesn't control the reaction   c) <u>Cause to stop a reaction</u>   d) All

48) **Minimum number of molecules is present in:**
    a) 1mole of H_2O b) 98g of H_2SO_4 c) 28g of N_2 d) <u>None</u>

49) **Which gas occupied maximum volume at STP?**
    a) 16g CH_4 b) 32g O_2 c) 1mole H_2 d) <u>None</u>

50) **Number of atoms of _C' in 1mole of Sucrose is:**
    a) $6(N_A)$ b) <u>$12(N_A)$</u>   c) $22(N_A)$ d) $11(N_A)$

51) **The efficiency of a reaction is shown by:**
    a) Actual Yield   b) Theoretical Yield   c) <u>% Yield</u>   d) Positive Yield

52) **To identify a limiting reactant following steps are involved:**
    a) 02 steps   b) <u>03 steps</u>   c) 04 steps   d) 05steps

53) **Number of molecules in 10g of H_3PO_4 is:**
    a) 3.31×10^{23} **b) 6.14×10^{22}**   c) 1.842×10^{21} d) 9.99×10^{21}

54) **No. of molecules of water in 10g ice is:**
    a) 6.68×10^{22} b) 9.99×10^{22} **c) 3.31×10^{23}**   d) 1.842×10^{21}

55) **Gram atoms in 0.1kg of silicon is:**
    a) 4.16moles   b) <u>3.56moles</u>   c) 6.01moles   d) 0.0043moles

56) **Gram atoms in 0.1g of Na is:**
    a) <u>0.0043moles</u>   b) 3.56moles   c) 4.16moles   d) 6.01moles

57) **1g molecule of sucrose is:**
    a) 98g   b) 180g   c) <u>342g</u>   d) 106g

58) **8.657g of a compound were decomposed into its elements & gave 5.217g of C. % of C is:**
    a) 11.11   b) <u>60.50</u>   c) 11.20   d) 60.26

59) **Chlorine has two isotopes which are:**
    a) Cl (35) & Cl (36)   b) Cl (36) & Cl (37)   c) Cl (35) & Cl (38)   d) <u>Cl (35) & Cl (37)</u>

60) **Relative atomic mass of H is:**
    a) 1.0008amu   b) <u>1.008amu</u>   c) 2.16amu   d) 1.16amu

61) **The mass of one mole of electrons is:**
    (a) 1.008 mg   (b) <u>0.55 mg</u>   (c) 0.184 mg   (d) 1.673 mg

62) **The number of atoms present in 0.5 moles of Na is:**
    (a) 1×10^{23} (b) 6.02×10^{23} (c) 2.04×10^{23} **(d) 3.01×10^{23}**

63) **How many isotopes are present in Pd:**
    (a) Four   (b) Five   (c) <u>Six</u>   (d) Seven

64) **The percentage of oxygen in water is:**
    (a) 80%   (b) 8.8%   (c) <u>88.8%</u>   (d) 9.8%

65) **The number of moles of NO_2 which contains 16 g of oxygen:**
    (a) 0.25   (b) <u>0.50</u>   (c) 1.0   (d) 1.50

66) **The volume occupied by 2.0 g of Ne at STP:**
    (a) 2.24 dm^3 (b) 22.4 dm^3 **(c) 1.12 dm^3**   (d) 112 cm^3

67) **A sample in the ionization chamber of mass spectrometer is ionized by:**
    <u>(a) Electrons</u>   (b) Proton   (c) Neutron   (d) Nucleus

68) **Which one of the following pair is not iso-electronic:**
    (a) CO, N_2 (b) Na^+, Ne   <u>(c) Ca, Ar</u>   (d) K^+, Ar

69) **180 g of glucose contains number of hydrogen atoms:**
    (a) 3.6×10^{23} (b) 6.0×10^{23} (c) 7.2×10^{23} **(d) 7.2×10^{24}**

70) **Who first of all determined atomic masses of elements:**
    <u>(a) J. Berzelius</u>   (b) J.J. Thomson   (c) Johon Dalton   (d) Democritus

71) **Which of the following elements has nine isotopes:**
    (a) Ca   b) Pd   (c) <u>Cd</u>   (d) Sn

72) **Which of the following will form single peak in mass spectrograph:**
    (a) Iodine   (b) Arsenic   (c) Fluorine   (d) <u>All of these</u>

73) **Which one of the following contains maximum number of molecules:**
    (a) <u>16.0 g of CH_4</u>   (b) 16.0 g of O_2 (c) 16.0 g of SO_2 (d) 16.0 g of H_2O

74) **Atoms of all the elements always contain in nucleus:**
    (a) Proton   (b) Proton and neutron   (c) Neutron   (d) Electron and neutron

75) **Actual yield of a chemical reaction is always less than theoretical yield because:**
    (a) Side reactions   (b) Wastage of products   (c) Reversible reactions   <u>(d) All of these</u>

76) **Mass of sodium in 53 g of Na_2CO_3 is:**
    <u>(a) 23 g</u>   (b) 46 g   (c) 92 g   (d) 106 g

77) **20 moles each of Mg and O_2 react to form MgO. The amount of MgO formed would be:**
    (a) 20 g   (b) 400 g   (c) <u>800 g</u>   (d) 1600 g

78) **The number of peaks obtained in mass spectrometry shows:**
    (a) Charge on isotope   (b) Mass of isotope   (c) <u>Number of isotopes</u>   (d) Relative abundance of isotopes

79) **Which of the following ion formation is always exothermic:**
    <u>(a) Uni-negative</u>   (b) Uni-positive   (c) Di-negative   (d) Di-positive

80) **The number of isotopes of elements with even mass number and even atomic number are:**
    (a) 280   (b) 300   (c) <u>154</u>   (d) 54

81) **Percentage of oxygen in calcium carbonate is:**
    (a) 40%   (b) <u>48%</u>   (c) 12%   (d) 16%

82) **Which one of the following substances is used as CO2 absorber in combustion analysis:**
    (a) $Mg(ClO_4)_2$ (b) <u>50% KOH</u>   (c) Lime   d) none of these

83) Which one of the following properties is always in whole number:
(a) Atomic mass   (b) Atomic radius   (c) Atomic volume   (d) Atomic number

84) What is the mass of one mole of Iodine:
(a) 53 g   (b) 74 g   (c) 127 g   (d) 254 g

85) 0.5 moles of H_2SO_4 contains —X‖ moles of oxygen atoms —X‖ is:
(a) 0.5   (b) 1.0   (c) 2.0   (d) 4.0

86) What will weigh more:
(a) 2 mole N_2 (b) 1 mole O_3 (c) 2 mole O_2 (d) 2 mole CO_2

87) The number of electrons in one mole of H_2 is:
(a) 6.02×10^{23} (b) 3.01×10^{23} (c) 12.04×10^{23} (d) Indefinite

88) CO+ is an example of:
(a) Free radical   (b) Cationic molecular ion   (c) Anionic molecular ion   (d) Stable molecule

89) Relative atomic mass is the mass of an atom of an element as compared to the mass of one atom of:
(a) Oxygen   (b) Hydrogen   (c) Nitrogen   (d) Carbon

90) Large number of isotopes are known for the elements whose masses are multiple of:
(a) Two   (b) Four   (c) Six   (d) Eight

91) The least number of molecules is present in 30 g of:
(a) N_2O (b) NO   (c) NO_2 (d) N_2O_3

92) How many atoms of carbon are present in 18 g of glucose
(a) $6.02 \square 10^{22}$ (b) $3.6 \square 10^{23}$ (c) $6.0 ^- 10^{23}$ (d) $3.6 ^- 10^{24}$

93) The relative atomic mass of oxygen according to C ∟12.000 a.m.u standard is:
(a) Less than 16   (b) More than 16   (c) 16 only   (d) No relationship

94) An organic compound contains 2% of sulphur. The molar mass of compound is:
(a) 200   (b) 800   (c) 1600   (d) 3200

95) What mass of oxygen is consumed by the complete combustion of 21.0 gram of ethylene?
a) 24.1 g   b) 72.0 g   c) 60.5 g   d) 69.0 g

96) If proton number of two atoms is same then it can be concluded that
a) They are isotopes   b) Compounds of both atoms will be similar in reactivity towards other compounds
c) Both have same colours   d) Both have same melting point

97) Empirical formula and formula unit of an ionic compound
a) May be similar or different   b) Are always different   c) Are always similar   d) Ionic compounds don't have any empirical formula

98) Which of the following statement is correct ?
a) The NO.of negative ions having group of atoms is less common   b) The NO.of peaks in mass spectrum gives number of isotopes
c) Elements with odd atomic number possess more than two stable isotopes   d) The current strength of each isotope of an element gives mass number

99) A mole of any substance is related to
a) Number of particles   b) Mass of a substance   c) Volume of gaseous substances   d) All of these

100) The number of gram molecules of oxygen in 6.02×10^{24} CO molecules is
a) 1g molecules   b) 5g molecules   c) 2 g molecules   d) 8 g molecules

101) Boron has two stable isotopes, B_{10}, (19%) and B_{11} (81%). Find the average atomic weight of boron?
a) 11.2   b) 12.6   c) 10.8   d) 9.6

102) Which among the following is the heaviest?
a) one mole of oxygen   b) 100 amu of uranium   c) One molecule of sulfur trioxide   d) 44 g carbon dioxide

103) A compound possesses 8 % sulfur by mass. The least molecular mass is
a) 200   b) 155   c) 400   d) 355

104) The incorrect statement for 14 g of CO is
a) It occupies 2.24 liter at STP   b) It corresponds to 0.5 mol of CO
c) It corresponds to same mol of CO and N_2 d) It corresponds to 3.01×10^{23}

105) Which of the followings is not true for atom?
a) It can always exist independently   b) It is composed of subatomic particles   c) It can be ionized   d) It can combine with other atoms

106) From the complete decomposition of 20 g $CaCO_3$ at STP the volume of CO_2 obtained is
a) 2.24 L   b) 44.8 L   c) 4.48 L   d) 48.4 L

107) The volume of 1.0 g of hydrogen in liters at STP is
a) 22.4 L   b) 11.2 L   c) 1.12 L   d) 44.56 L

108) Which has maximum number of molecules?
a) 7 g N_2 b) 18 g NO_2 c) 2 g H_2 d) 16 g O_2

109) In the reaction, $4NH_3 + 5O_2 \rightarrow 4NO + 6H_2O$, when one mole of ammonia and one mole of oxygen are made to react to completion, then
a) 1.0 mol of H_2O produced   b)1.5 mol NO formed   c) All the oxygen is consumed   d) All ammonia consumed

110) The Number of unstable isotopes produced due to artificial means is
a) 300   b) 400   c) 250   d) None of above

111) In the mass spectrometer the atoms or molecules are ionized by using
a) alpha-particles   b) gamma-rays   c) Electrons   d) All of these

112) The maximum number of molecules is present in
a) 15 L of H_2 gas at STP   b) 1.5 g of H_2 gas   c) 5 L of N_2 gas at STP   d) 5 g of O_2 gas

113) For equal mass which of the following pairs of gases contain equal number of molecules?
a) CO_2 and NO_2 b) NO and CO   c) CO and CO_2 d) N_2O and CO_2

114) x liter of carbon monoxide is present at STP. It is completely oxidized to CO_2, the volume of CO_2 formed is 11.207 liters at STP. What is the value of X in liters?   a) 11.2   b) 10.2   c) 21.2   d) 32.2

115) The mass spectrum of an unknown element Z shows nine peaks. The element Z may be
a) Neon   b) Silver   c) Palladium   d) Cadmium

116) Given the following equation $2KClO_3 \longrightarrow 2KCl + 3O_2$
The maximum mass of O_2 produced by the decomposition of $0.3 N_A$ formula units of $KClO_3$ is
a) 14.4 g   b) 148 g   c) 48 g   d) None of these

117) An atom is
a) Smallest invisible particle in an element   b) Smallest particle of an element which can undergo a chemical reaction
c) Building block of an element   d) Always smaller than molecule

118) 10 moles of H_2O contains
a) 100 moles of bonds   b) 25 moles of hydrogen bonds   c) 30 atoms   d) 100 moles of electrons

119) The total number of moles of sulfur required to produce 100 moles of sulphuric acid is
a) 100   b) 50   c) 150   d) 200

120) 8 g of O_2 reacts with 8 g of H_2 to produce water. Which order is correct according to limiting and non-limiting reactant respectively?
a) H_2, O_2 b) O_2, H_2 c) Both are limiting reactants   d) Both are non-limiting reactant

121) The number of atoms in 4.25 g of NH_3 is approximately
a) 1×10^{23} b) 4×10^{23} c) 2×10^{23} d) 6×10^{23}

122) The element showing single peak in mass spectrograph is
a) Fluorine   b) Bromine   c) Chlorine   d) Neon

123) Number of atoms in 560 g of Fe (atomic mass 65 g/mol)
a) is twice that of 70 g of N b) is half as 2 grams of hydrogen <u>c) Is half that of 20 g H</u> d) None of these

124) An acid of molecular mass 104 contains 34.6 % carbon and 3.8 % hydrogen and rest is oxygen. The molecular formula of the acid is
a) <u>$C_3H_4O_4$</u> b) $C_2H_4O_2$ c) $C_2H_2O_4$ d) None of above

125) How many moles of magnesium phosphate, $Mg_3(PO_4)_2$ will contain 0.25 mole of oxygen atoms?
a) 0.02 b) 1.25×10^{-2} <u>c) 3.125×10^{-2}</u> d) 2.5×10^{-2}

126) What is the number of atoms in 224 dm^3 of chlorine gas at STP
a) 10 b) 20 c) 6.02×10^{24} <u>d) 1.2×10^{25}</u>

127) 4 moles of oxygen atoms are present in
a) 4.0 moles of H_2SO_4 b) 2 moles of H_2SO_4 c) 0.5 moles of H_2SO_4 <u>d) None of above</u>

128) 7.5 gram of a gas occupies 5.6 liters as STP. The gas is
a) CO <u>b) NO</u> c) CO_2 d) N_2O

129) If equal moles of glucose &urea are in vessel filled with water. What is mass percentage of urea in solution?
a) 75 b) 50 c) 46.146 <u>d) 25</u>

130) One mole of CH_4 contains
<u>A) 4 g atoms of hydrogen</u> B) 6.02×10^{23} carbon atoms c) 3 g atoms of carbon d) 1.810×10^{23} molecules of CH4

131) 0.25 mol of P_4 molecules contains.....................................Atoms?
a) 1.764×10^{23} b) 6.023×10^{23} c) 6.02×10^{19} **d) 8.086×10^{23}**

132) If 6.40 g of an unknown molecular species contains 12.04×10^{22} molecules, the species if;
a) O_2 <u>b) N_2</u> c) CO_2 d) SO_2

133) Which formula shows highest percentage of nitrogen of nitrogen by mass
a) <u>NH_3</u> b) N_2H_4 c) NO_2 d) NH_4OH

134) An ion is formed when
a) An electron is added to an atom. b) An electron is removed from an atom.
c) An electron is removed from a molecule. <u>d) All of the above</u>

135) When an electron is taken up by a non-metal atom, energy is
a) <u>Released</u> b) Remains constant c) Absorbed d) May release or absorb

136) Ions and the atoms from which they are formed above
a) Same chemical properties <u>b) Almost same masses</u> c) Same no. of electrons d) All of these

137) Which one of the following pair has the same empirical and molecular formula?
a) C_6H_6, NaCl b) $C_6H_{12}O_6$, $C_{12}H_{22}O_{11}$ <u>c) CO_2, H_2O</u> d) NH_3, $C_6H_6O_2$

138) Percentage of oxygen in H_2O is
a) 80% b) 8.8% <u>c) 88.8%</u> d) 9.8%

139) The largest number of H^+ are produced by complete ionization of
a) 0.100 moles of HCl <u>b) 0.334 moles of H_3PO_4</u> c) 0.05 moles of H_2SO_4 d) All of the above

140) Total number of electrons present in 48g Mg^{2+} are
a) $24N_A$ <u>b) $20N_A$</u> c) $2N_A$ d) None of these

141) A sample of pure matter is
a) Element <u>b) Substance</u> c) Compound d) Mixture

142) How many moles of CO_2 which contains 8.0 gm of oxygen
a) <u>0.25</u> b) 1.0 c) 0.50 d) 1.50

143) Which of the following is not correctly matched about the applications of a mass spectrometer
a) No. of atomic ions peaks : no. of isotopes b) Height of peaks : Relative abundance of isotopes
<u>c) m/e ratio : mass of isotopes</u> d) Position of atomic ion peaks on abscissa : Isotopic mass

144) How many moles of atoms are present in 7 moles of sulfuric acid?
a) <u>49</u> b) 21 c) $7 \times 6 \times 10^{23}$ d) 7

145) Compared to 88g of carbon dioxide, 88g of propane contains
a) Less atoms b) The same number of molecules c) The same number of atoms <u>d) More molecules</u>

146) Which of the following contain only empirical formulas?
a) C_3H_6, NO_2, H_2O_2 <u>b) C_5H_{12}, NO_2, H_2O</u> c) C_5H_{10}, N_2O_4, H_2O_2 d) C_3H_8, N_2O_4, H_2O

147) 1 gram molecule refers to:
a) Amount in grams equivalent to 1 mole of an atom <u>b) Amount in grams equivalent to 1 mole of a molecule</u>
c) Amount in grams equivalent to 1 mole of a molecule or a compound d) Amount in grams of an ionic compound

148) Number of H^+ ions when 0.1 mole of sulfuric acid is completely ionized in water:
a) $4 \times 6.022 \times 10^{23}$ b) $2 \times 6.002 \times 10^{23}$ c) $1 \times 6.022 \times 10^{23}$ <u>d) None of these</u>

149) 1 gram formula refers to:
a) Amount in grams equivalent to 1 mole of an atom b) Amount in grams equivalent to 1 mole of a covalent compound
<u>c) Amount in grams equivalent to 1 mole of an ionic compound</u> d) Amount in grams equivalent to 1 mole of an ion

150) How many electrons have to be removed to ionize 1.0×10^{-6} mol of Ne atoms to Ne^+ ions ?
a) $6.02 \times 10^{23} / 1.0 \times 10^{-6}$ b) $1.0 \times 10^{-6} \times 6.02 \times 10^{23} / 20.2$
<u>c) $1.0 \times 10^{-6} \times 6.02 \times 10^{23}$</u> d) $1.0 \times 10^{-6} \times 6.02 \times 10^{23} / 9.65 \times 10^{-1}$

151) Mg reacts with HCl as per the following reactions: $Mg(s) + 2HCl(aq) \rightarrow MgCl_2(aq) + H_2(g)$ Given that; Mg = 21g and HCl = 21g, the excess reactant is;
a) <u>Mg</u> b) HCl c)Both are present in an equal stoichiometric amount d)None of these

152) 5604 cm^3 of H_2 gas at STP contains of hydrogen atoms:
a) 6.02×10^{23} <u>b) 2.6×10^{23}</u> c) 3.01×10^{23} d) 1.50×10^{23}

153) Gram atoms of hydrogen in 5.05g H_2:
a) 5.50 b) 2.25 c) 5.45 <u>d) 2.50</u>

154) Mass in grams of 10 moles of aspartame ($C_{14}H_{18}N_2O_5$):
a) 29400g <u>b) 2940g</u> c) 2850g d) 2800g

155) % of the nitrogen in urea (NH_2CONH_2):
a) 82.35% b) 35% <u>c) 46%</u> d) 55.56%

156) In a mass spectrometer, increasing the magnetic field strength with constant electric field results in?
a) Increased radius 'r' <u>b) decreased radius 'r'</u> c) No effect d) Increased ionization

157) In a mass spectrometer, increasing the electric field with constant magnetic field results in:
a) <u>Increased radius 'r'</u> b) Increased ionization c) Decreased radius 'r' d) None of the above

158) When 0.5 moles of $Al_2(SO_4)_3$ are dissolved in water, the total number of particles produced?
a) 1.2×10^{23} b) 3.0×10^{23} <u>c) 1.5×10^{24}</u> d) 2.5×10^{23}

159) A smuggler was caught by Airport police and 24 g of diamond was recovered from him. How many atoms of carbon he was carrying?
a) 6×10^{23} b) 1.8×10^{24} <u>c) 1.2×10^{24}</u> d) 2.4×10^{24}

160) Which one is a mono-isotopic element?
a) Cl b) H <u>c) F</u> d) Cd

161) Molecular ions are produced in the mass spectrometer. Which type of molecular ions is more abundant?
a) Negatively charged <u>b) Positively charged</u> c) H^+ ions d) Equal positive and negative ions

162) The height of the peak in mass spectrum shows:
   a) Number of isotopes   b) Mass Number   c) <u>Relative abundance</u>   d) Number of protons

163) The separation of different isotopes in the mass spectrometer is done on the basis of:
   a) Different amounts of positive change on each ion b) Different m/e   c) Different e/m value   d) Velocities of ions

164) Equal volumes of CO and N_2 are taken in identical conditions, The correct relationship between masses of two gases is?
   a) $CO < N_2$ b) $N_2 < CO$ c) <u>$CO = N_2$</u>   d) All of these

165) The technique that is not used to separate isotopes is:
   a) Thermal diffusion   b) Ultracentrifuge   c) Distillation   d) <u>Extraction</u>

166) Combustion analysis is performed for the determination of:
   a) The molar mass of the compound   b) The structural formula of the substance
   c) <u>The empirical formula of the compound</u>   d) Mass of halogens present in an organic compound

167) The stoichiometric calculations for a chemical reaction results in:
   a) Actual yield   b) <u>Theoretical yield</u>   c) Percentage yield   d) Selectivity

168) Which of the following not has equal number of atoms as that in 6g Molybdenum (Ar : 96)
   a) <u>3 g O_3</u>   b) 4 g SO_2 c) 4 g Ca   d) 5 g SO_3

169) The mass of 0.5 mole of Aluminum is:
   (a) 13 g   (b) <u>13.5 g</u>   (c) 14 g   (d) 27 g

170) Dumpster's mass spectrometer was design for the identification of the isotopes of the
   a) Gaseous state   b) Plasma state   c) <u>Solid state</u>   d) Liquid state

171) That chemical analysis in which all the elements present in a compound are identified is called
   a) Quantitative Analysis   b) <u>Qualitative analysis</u>   c) Gravitational analysis   d) Volumetric analysis

172) Empirical formula of glucose is
   a) <u>CH_2O</u>   b) $C_2H_4O_2$ c) $C_6H_{12}O_6$ d) CHO

173) Out of 280 isotopes which occur in nature the radioactive isotopes are
   a) 116   b) 126   c) 30   d) <u>40</u>

174) 27g of Al will react completely with how much mass of O_2 & form Al_2O_3
   a) 8g of Oxygen   b) 16g of Oxygen   c) 32g of Oxygen   d) <u>24g Oxygen</u>

175) How many molecules are present in one g of Hydrogen?
   a) 6.02×10^{22} b) 6.02×10^{23} c) 2.0115×10^{23} d) <u>3.01×10^{23}</u>

176) What is the weight of oxygen which occupies 21 liters at S.T.P?
   a) 45g   b) 60g   c) <u>30g</u>   d) 50g

177) 40g of caustic soda (NaOH) contains?
   a) 6.023×10^{23} of Na^+ b) 6.02×10^{23} atoms Na   c) 6.02×10^{23} formula units   d) <u>a &c</u>

178) One liter of a gas at S.T.P weight 1.16g. It can possible be?
   a) <u>C_2H_2</u>   b) CO   c) O_2 d) CH_4

179) How many formula units are there in 225g of KCl?
   a) 7.0×10^{23} b) 1×10^{23} c) <u>18.06×10^{23}</u>   d) 4×10^{23}

180) Which compound doesn't have molecular formula
   a) <u>NaCl</u>   b) N_2 c) Cl_2 d) H_2O

181) 3 moles NH_3 is equals to?
   a) <u>67.3 dm^3</u>   b) 18 dm^3 c) 1 dm^3 d) None of them

182) The pressure in vaporizing chamber in mass spectrometer torr
   a) 10^{-5} to 10^{-6} b) <u>10^{-6} to 10^{-7}</u>   c) 10^5 to 10^7 d) 10^5 to 10^6

183) The smallest collection of ions in a compound is called
   a) Mass   b) Atom   c) Molecule   d) <u>Formula unit</u>

184) A ring of Diamond is made up of 6g C. How many atoms of C are in it?
   a) 6.023×10^{23} b) <u>$0.5 \times 6.023 \times 10^{23}$</u>   c) 6.023×10^{21} d) $0.6 \times 6.023 \times 10^{23}$

185) Formation of Uni-negative ion is
   a) <u>Exothermic</u>   b) Endothermic   c) Both a & b   d) None

186) Which of the following is not mono-Isotopic element
   a) Arsenic   b) <u>Uranium</u>   c) Iodine   d) Gold

187) The mass of 2 moles of nitrogen gas is
   a) 14g   b) 28g   c) <u>56g</u>   d) 0.5g

188) Large number of isotopes are known for the elements whose masses are multiples of
   a) 3   b) <u>4</u>   c) 2   d) 1

189) In mass spectrometer the potential difference applied in volts is
   a) 500-1500   b) <u>500-2000</u>   c) 1000-2000   d) 500-2500

190) Nickel has isotopes
   a) 3   b) 4   c) <u>5</u>   d) 11

191) An ordinary microscope can measure the size of an object
   a) 50nm   b) <u>500nm</u>   c) 5000nm   d) 0.5nm

192) Number of moles of H_2O will produced if 4 moles of H_2 react with excess O_2
   a) 1   b) 2   c) 3   d) <u>4</u>

193) $(NH_2)_2CO$ is the formula of
   a) <u>Urea</u>   b) Sugar   c) Amino acid   d) Caustic soda

194) The formula of Camphor is
   a) <u>$C_{10}H_{16}O$</u>   b) $C_{11}H_{22}O_{11}$ c) $C_{10}H_{26}O$ d) $C_1H_3O_1$

195) Empirical Formula of Vitamin C is
   a) $C_1H_2O_1$ b) $C_{11}H_{22}O_{10}$ c) <u>$C_3H_4O_3$</u>   d) $C_{11}H_{22}O_{11}$

196) Molecular mass of $CaCO_3$
   a) <u>100g</u>   b) 90g   c) 120   d) 180

197) Masses of atom ranges
   a) 10^{25} to 10^{27}g   b) 10^{-27}g to 10^{-25}g   c) <u>10^{-24} to 10^{-22}g</u>   d) 10^{24} to 10^{28}g

198) How many times hemoglobin is heavier than one hydrogen
   a) 38000   b) <u>68000</u>   c) 58000   d) 48000

199) Molecular ions can be produced by bombardment of
   a) Beam of electrons   b) X-Rays   c) Alpha Particles   d) <u>All</u>

200) C-12 taken as scale for atomic masses measurement because it is
   a) Its Stable   b) Its abundant   c) Its mass is exact 12.0   d) <u>All</u>

201) Electrometer is that which
   a) Produced current   b) Receive isotopic ions   c) Called ion Collector   d) <u>All</u>

202) The largest number of molecules are present in:
   (a) <u>3.6 gm H_2O</u>   (b) 4.8 gm C_2H_5OH (c) 2.8 gm CO   (d) 5.4 gm N_2O_5