

Choose the correct answer

1) Atoms of the same element with different mass numbers are called

- a) metals.
- b) allotropes.
- c) chemical families.
- d) isotopes.

2) Calculate the percent composition by mass of C in  $C_6H_5Br$ ?

- a) 59.29%
- b) 16.88%
- c) 3.81%
- d) 45.86%

3) The elements in a column number 2A of the periodic table are known as

- a) metalloids.
- b) alkali metal.
- c) alkaline earth metal.
- d) nonmetals.

4) What is the formula for the ionic compound formed by magnesium and bromine

- a)  $MgBr$
- b)  $Mg_2Br$
- c)  $MgBr_2$
- d)  $MgBr_3$

**B**

5) When 17.0 g NaCl mixed with excess  $\text{H}_2\text{SO}_4$  and 8.95 g HCl is formed. What is the %yield of HCl?



- a) 64.0%
- b) 90.0%
- c) 75.0%
- d) 84.4%

6) What is the mass number of Sulfur atom that has 16 neutrons?

- a) 16
- b) 31
- c) 32
- d) 33

7) Which of these elements is most likely to be a poor conductor of electricity?

- a) N
- b) Fe
- c) Ti
- d) Co

8) Bromine consists of 50%  $^{79}\text{Br}$  ( 78.918 amu) and 50%  $^{81}\text{Br}$  ( 80.916amu). Calculate the average atomic mass of Bromine?

- a) 79.9amu
- b) 78.512amu
- c) 99.5amu
- d) 98amu



9) How many liters are there in  $2.05 \times 10^4 \text{ m}^3$ ?

- a) 2050 L
- b) 2.050 L
- c)  $2.05 \times 10^{-1} \text{ L}$
- d)  $2.05 \times 10^7 \text{ L}$

10) Which of the following is SI base unit?

- a) molar
- b) gram
- c) Millimeter
- d) Mole

11) How many atoms are there in 1.90 moles of sulfur S?

- a)  $3.07 \times 10^{24}$
- b)  $1.14 \times 10^{24}$
- c)  $6.02 \times 10^{23}$
- d)  $9.59 \times 10^{22}$

12) 1 km is equal to how many meters?

- a) 1000
- b) 100
- c) 1
- d) 0.1

13) The SI unit of time is

- a) minute
- b) Hour
- c) second
- d) mole

14) How many grams of Magnesium hydroxide,  $\text{Mg}(\text{OH})_2$  are present in  $2.6 \times 10^{22}$  molecules of Magnesium hydroxide,  $\text{Mg}(\text{OH})_2$ ?

- a) 5.4gram
- b) 4.7gram
- c) 3.5gram
- d) 2.5gram

15) An atom of the isotope Nickel-61, consists of how many protons, neutrons, and electrons (p = proton, n = neutron, e = electron)

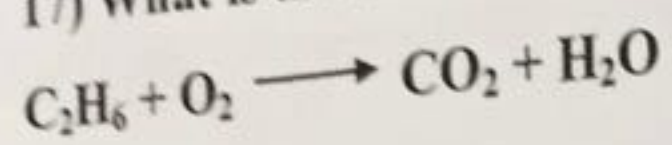
- a) 28p, 29n, 28e
- b) 28p, 31n, 28e
- c) 28p, 33n, 28e
- d) 28p, 35n, 28e

16) If 3.56 g of acetaldehyde occupies 4.54 mL, what is the density of acetaldehyde in g/mL?

- a) 0.784 g/mL
- b)  $7.84 \times 10^{-3}$  g/mL
- c)  $7.84 \times 10^2$  g/mL
- d)  $7.84 \times 10^{-4}$  g/mL



17) What is the coefficient of  $\text{CO}_2$  when the following equation is balanced?



- a) 2
- b) 4
- c) 7
- d) 6

18) What is the empirical formula of the compound whose molecular formula is  $\text{S}_4\text{N}_4$ ?

- a)  $\text{S}_2\text{N}_2$
- b)  $\text{S}_3\text{N}_3$
- c)  $\text{S}_2\text{N}$
- d)  $\text{SN}$

19) Which one of these species is an ion?

- a)  $\text{Ir}^{4+}$
- b)  $\text{IrCl}_2$
- c)  $^{16}\text{O}$
- d)  $\text{IrF}_4$

20) What temperature is  $-85^\circ\text{F}$  when converted to degrees Celsius?

- a)  $-65$
- b)  $65$
- c)  $85$
- d)  $-85$

21) What is the composition?

11.2 per

a)  $\text{H}_2\text{O}$

b)

ure is

اسم العنصر  
الرقم الذري  
اسم المادة  
رمز المادة ورقمها  
مكان الاختبار  
رمز نموذج الأسئلة

B

21) What is the empirical formula of the compound with the following composition?

11.2 percent H, 88.8 percent O

- a)  $\text{H}_2\text{O}$
- b)  $\text{HO}_2$
- c)  $\text{H}_2\text{O}_2$
- d)  $\text{HO}$

22) What is the limiting reagent and what quantity of  $\text{CaF}_2$  results (in gram) from the reaction of 13.00g of calcium and 10.00g of fluorine?



- a)  $\text{F}_2$ , 20.55g
- b)  $\text{Ca}$ , 3.22g
- c)  $\text{F}_2$ , 4.78g
- d)  $\text{Ca}$ , 4.11g

23) Which formula is an empirical formula?

- a)  $\text{S}_8$
- b)  $\text{H}_2\text{S}_2\text{O}_8$
- c)  $\text{CO}$
- d)  $\text{H}_2\text{O}_2$

24) Which is the correct formula for cobalt(II) sulfate

- a)  $\text{Co}_2\text{SO}_4$
- b)  $\text{Co}_3(\text{SO}_4)_2$
- c)  $\text{Co}_2\text{SO}_3$
- d)  $\text{CoSO}_4$



**25) How many moles of aluminum in 100 g of Al?**

- a) 3.7 mole
- b) 2.58 mole
- c) 2.17 mole
- d) 1.35 mole

**26) What temperature is  $45^{\circ}\text{C}$  when converted to kelvin?**

- a) 318.15
- b) 218.15
- c) 118.15
- d) 100.15

**27) If the molar mass of this compound is about 140 g/mol and empirical formula is  $\text{CH}_2$ . What is its molecular formula?**

- a)  $\text{C}_6\text{H}_{12}$
- b)  $\text{CH}_2$
- c)  $\text{C}_{10}\text{H}_{20}$
- d)  $\text{C}_2\text{H}_4$

**28) A cadmium ion,  $\text{Cd}^{2+}$ , has:**

- a) 48 protons and 48 electrons.
- b) 48 protons and 49 electrons.
- c) 48 protons and 50 electrons.
- d) 48 protons and 46 electrons.

29) The correct name for  $\text{N}_2\text{O}$  is

- a) nitrogen oxide.
- b) dinitrogen monoxide
- c) nitrogen monoxide
- d) nitrogen dioxide.

30) What is the molecular mass of  $(\text{C}_{12}\text{H}_{10})$  molecules?

- a) 154.08 g/mol
- b) 121.45 g/mol
- c) 152.41 g/mol
- d) 124.41 g/mol

GOOD LUCK

A.L.H



Choose the correct answer

1) Which of the following is a nonmetal ?

- a) C
- b) Li
- c) Ag
- d) Mg

2) Calculate the percent composition by mass of C in  $C_{12}H_{22}O_{11}$ ?

- a) 42.08%
- b) 51.44%
- c) 34.73%
- d) 6.98%

3) How many meters are in 1000 ?

- a)  $1 \times 10^{-3}$
- b)  $1 \times 10^{-2}$
- c)  $1 \times 10^{-1}$
- d) 1

4) What is the mass number of Calcium atom that has 20 neutrons?

- a) 20
- b) 38
- c) 39
- d) 40

29) If the molar mass of a compound is about 27.6 g/mol and empirical formula is  $\text{BH}_3$ . What is its molecular formula?

- a)  $\text{BH}_3$
- b)  $\text{B}_2\text{H}_6$
- c)  $\text{B}_2\text{H}_3$
- d)  $\text{BH}_6$

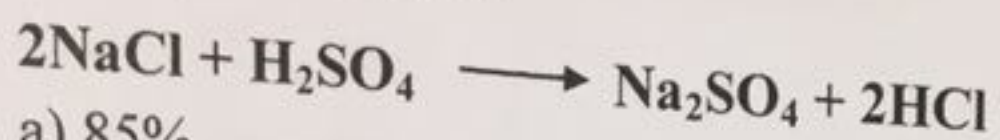
30) What is the molecular mass of acetic acid ( $\text{CH}_3\text{COOH}$ ) molecules?

- a) 50.06 g/mol
- b) 60.05 g/mol
- c) 65.30 g/mol
- d) 56.05 g/mol

**GOOD LUCK**



5) When 20.0 g NaCl mixed with excess  $\text{H}_2\text{SO}_4$  and 8.95 g HCl is formed. what is the %yield of HCl?



- a) 85%
- b) 90%
- c) 64%
- d) 71.7%

6) Second is the SI unit of:

- a) electrical current
- b) time
- c) amount of substance
- d) luminous intensity

7) What is SI derived unit of density?

- a)  $\text{Kg/m}^3$
- b)  $\text{g/m}^3$
- c)  $\text{g/mL}$
- d)  $\text{g}^\circ\text{k}$

8) Chlorine consists of 75% chlorine-35 (34.969 amu) and 25%chlorine-37 (36.966 amu). Calculate the the average atomic mass of Chlorine?

- a) 84amu
- b) 34.867 amu
- c) 98amu
- d) 99.5amu

9) What is the empirical formula of the compound whose molecular formula is  $B_4H_{10}$ ?

- a)  $B_4H_{10}$
- b)  $BH_2$
- c)  $BH_3$
- d)  $B_2H_5$

10) Which formula is an empirical formula?

- a)  $N_2H_4$
- b)  $P_4O_6$
- c)  $C_2H_2O_4$
- d)  $Al_2O_3$

11) Which one of these species is an atom?

- a)  $Cr^{3+}$
- b)  $CrCl_3$
- c)  $Cr$
- d)  $Cl^-$

12) How many atoms are there in 11.50 moles of sulfur S?

- a)  $9.82 \times 10^{25}$
- b)  $6.93 \times 10^{24}$
- c)  $9.59 \times 10^{22}$
- d)  $3.07 \times 10^{24}$



**13) An atom of Neon-20, consists of how many protons, neutrons, and electrons (p = proton, n = neutron, e = electron)**

- a) 10p, 10n, 10e
- b) 10p, 10n, 20e
- c) 20p, 10n, 20e
- d) 20p, 10n, 10e

**14) What is the formula for the binary compound formed by calcium and nitrogen?**

- a)  $\text{Ca}_3\text{N}_2$
- b)  $\text{Ca}_2\text{N}$
- c)  $\text{CaN}_2$
- d)  $\text{Ca}_3\text{N}$

**15) How many grams of Calcium hydroxide,  $\text{Ca}(\text{OH})_2$ , are present in  $6.6 \times 10^{23}$  molecules of Calcium hydroxide,  $\text{Ca}(\text{OH})_2$ ?**

- a) 73.2 gram
- b) 61.32 gram
- c) 50 gram
- d) 81.32 gram

**16) The Stock system name for  $\text{NiO}$  is:**

- a) Nickel(IV) oxide.
- b) Nickel oxide.
- c) Nickel(II) oxide.
- d) Nickel(III) oxide.

**17) The correct name for  $\text{SF}_6$  is:**

- a) sulfur tetrafluoride.
- b) sulfur pentafluoride
- c) sulfur hexafluoride.
- d) sulfur heptafluoride

**18) What is the coefficient of  $\text{H}_2\text{O}$  when the following equation is balanced?**



- a) 4
- b) 2
- c) 6
- d) 5

**19) Two isotopes of an element differ only in their:**

- a) atomic number.
- b) mass number.
- c) chemical families.
- d) number of electrons.

**20) What is the empirical formula of the compound with the following composition?**

**42.86 percent C, 57.17 percent O**

- a)  $\text{C}_2\text{O}_3$
- b)  $\text{CO}_2$
- c)  $\text{CO}$
- d)  $\text{CO}_4$



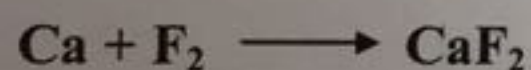
21) The elements in a column of the periodic table are known as:

- a) metalloids.
- b) a period.
- c) a group.
- d) nonmetals

22) If 9.812 g of 2-propanol occupies 12.5 mL, what is the density of 2-propanol in g/mL?

- a) 0.785 g/mL
- b)  $7.85 \times 10^{-3}$  g/mL
- c)  $7.85 \times 10^2$  g/mL
- d)  $7.85 \times 10^{-4}$  g/mL

23) What is the limiting reagent and what quantity of  $\text{CaF}_2$  results (in gram) from the reaction of 3.00g of calcium and 1.00g of fluorine?



- a) Ca, 5.85g
- b)  $\text{F}_2$ , 2.78g
- c) Ca, 4.11g
- d)  $\text{F}_2$ , 2.05g

24) A cobalt ion,  $\text{Co}^{3+}$ , has:

- a) 27 protons and 27 electrons.
- b) 27 protons and 30 electrons.
- c) 27 protons and 25 electrons.
- d) 27 protons and 24 electrons.

25) What temperature is 222 K when converted to degrees Celsius?

- a) -51.15
- b) -74.15
- c) 66.15
- d) 34.15

26) The number of moles of helium in 3.7 g of He is:

- a) 0.21 mole
- b) 0.57 mole
- c) 1.1 mole
- d) 0.924 mole

27) How many milliliters are  $9 \text{ cm}^3$ ?

- a) 0.009 mL
- b) 9 mL
- c)  $9 \times 10^3 \text{ mL}$
- d)  $9 \times 10^{-6} \text{ mL}$

28) If the molar mass of a compound is about 30 g/mol and empirical formula is  $\text{CH}_2\text{O}$ . What is its molecular formula?

- a)  $\text{C}_4\text{H}_8\text{O}_4$
- b)  $\text{C}_6\text{H}_{12}\text{O}_6$
- c)  $\text{C}_2\text{H}_4\text{O}_2$
- d)  $\text{CH}_2\text{O}$



**D**

**29) What temperature is  $40^{\circ}\text{F}$  when converted to degrees Celsius?**

- a) 60
- b) 4.44
- c) -60
- d) 30.22

**30) What is the molecular mass of ammonia ( $\text{NH}_3$ ) molecules?**

- a) 19 g/mol
- b) 17 g/mol
- c) 23 g/mol
- d) 18 g/mol

**GOOD LUCK**

**A.L.H**

Choose the correct answer

1) If 7.522 g of methanol occupies 9.5 mL, what is the density of methanol in g/mL?

- a) 0.7918 g/mL
- b)  $7.9 \times 10^{-3}$  g/mL
- c)  $7.9 \times 10^2$  g/mL
- d)  $7.9 \times 10^{-4}$  g/mL

2) Calculate the percent composition by mass of C in (CH<sub>3</sub>CHO)?

- a) 9.15%
- b) 24.99%
- c) 54.54%
- d) 36.32%

3) What is the formula for the ionic compound formed by sodium and oxygen:

- a) NaO
- b) Na<sub>2</sub>O
- c) NaO<sub>2</sub>
- d) Na<sub>3</sub>O<sub>2</sub>

4) Which of the following is not a SI base unit?

- a) Ampere
- b) Candela
- c) Kilogram
- d) Gram



5) When 16.0 g NaCl mixed with excess  $\text{H}_2\text{SO}_4$  and 8.95 g HCl is formed . what is the %yield of HCl?



- a) 7.0%
- b) 64.0%
- c) 89.7%
- d) 55.0%

6) What is the mass number of Potassium atom that has 21 neutrons ?

- a) 19
- b) 21
- c) 39
- d) 40

7) A sample of neon was found to contain 90.9% of  $^{20}\text{Ne}$  (19.99amu), 0.26% of  $^{21}\text{Ne}$  (20.99amu), and 8.8% of  $^{22}\text{Ne}$  (21.99amu), calculate the average atomic mass of neon (Ne).

- a) 35.45amu
- b) 84.00amu
- c) 98.0amu
- d) No correct answer

8) How many liters are there in  $2.6 \text{ dm}^3$ ?

- a) 2.6 L
- b) 26 L
- c) 2600 L
- d) 0.0026 L

9) Ampere is the SI unit of

- a) electrical current
- b) temperature
- c) amount of substance
- d) luminous intensity

10) how many meters are in  $2\ \mu\text{m}$  ?

- a)  $2 \times 10^{-12}$
- b)  $2 \times 10^{-10}$
- c)  $2 \times 10^{-6}$
- d)  $2 \times 10^{-8}$

11. How many atoms are there in 1.10 moles of sulfur S?

- a)  $9.59 \times 10^{22}$
- b)  $3.07 \times 10^{24}$
- c)  $9.82 \times 10^{25}$
- d)  $6.62 \times 10^{23}$

12) What temperature is  $-45^\circ\text{C}$  when converted to kelvin?

- a) 44.15
- b) 321.15
- c) 76.15
- d) 228.15



13) What temperature is  $90^{\circ}\text{F}$  when converted to degrees Celsius?

- a) 32.22
- b) 22.32
- c) -10.22
- d) 60.33

14) how many grams of Calcium hydroxide,  $\text{Ca}(\text{OH})_2$ , are in  $1.6 \times 10^{23}$  molecules of Calcium hydroxide,  $\text{Ca}(\text{OH})_2$ ?

- a) 43.2gram
- b) 19.7gram
- c) 18.4gram
- d) 6.3gram

15) The Stock system name for  $\text{Co}_2\text{O}_3$  is

- a) cobalt(I) oxide.
- b) cobalt oxide.
- c) cobalt(II) oxide.
- d) cobalt(III) oxide.

16) The correct name for  $\text{P}_4\text{O}_6$  is

- a) Phosphorus oxide
- b) tetraphosphorus hexoxide.
- c) diphosphorus trioxide.
- d) Oxygen phosphide.

17) What is the coefficient of  $C_2H_6$  when the following equation is balanced?



- a) 2
- b) 6
- c) 7
- d) 4

18) Which formula is an empirical formula?

- a)  $H_2O_2$
- d)  $N_2O_4$
- c)  $C_6H_6$
- d)  $HCl$

19) What is the empirical formula of a compound with the molecular formula  $C_6H_{10}O_8$ ?

- a)  $C_4H_8O_4$
- b)  $C_3H_6O_3$
- c)  $C_2H_4O_2$
- d)  $C_3H_5O_4$

20) An atom of the isotope tin-120, consists of how many protons, neutrons, and electrons? (p = proton, n = neutron, e = electron)

- a) 50p, 60n, 60e
- d) 50p, 70n, 70e
- c) 50p, 70n, 50e
- d) 50p, 120n, 50e



21) What is the empirical formula of the compound with the following composition?

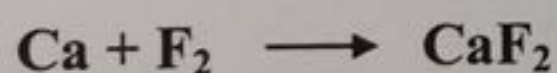
46.67 percent N, 53.33 percent O

- a)  $\text{N}_2\text{O}_3$
- b)  $\text{NO}_2$
- c)  $\text{N}_2\text{O}$
- d)  $\text{NO}$

22) Which one of these species is an ion?

- a-  $\text{Ni}^{2+}$
- d-  $\text{PH}_3$
- c-  $\text{N}_2$
- d-  $^{63}\text{Ni}$

23) What is the limiting reagent and what quantity of  $\text{CaF}_2$  results (in gram) from the reaction of 1.00g of calcium and 2.00g of fluorine?



- a)  $\text{F}_2$ , 2.78g
- b)  $\text{Ca}$ , 3.22g
- c)  $\text{Ca}$ , 1.95g
- d)  $\text{F}_2$ , 4.11g

24) A bromide ion,  $\text{Br}^-$ , has:

- a) 35 protons and 35 electrons
- b) 35 protons and 36 electrons
- c) 36 protons and 35 electrons
- d) 35 protons and 34 electrons

**25) Which of these elements is most likely to be a good conductor of electricity?**

- a) N
- b) S
- c) He
- d) Ti

**26) The number of moles of aluminum in 1.7 g of Al is:**

- a) 0.56 mole
- b) 0.06 mole
- c) 0.76 mole
- d) 1.21 mole

**27) An anion is defined as:**

- a- A charged atom or group of atoms with a net negative charge.
- b- A stable atom
- c- A group of stable atoms
- d- An atom or group of atoms with a net positive charge

**28) A halogen is an element of group Number**

- a- 1A
- b- 2A
- c- 7A
- d- 8A



29) If the molar mass of this compound is about 56 g/mol and empirical formula is  $\text{CH}_2$ . What is its molecular formula?

- a)  $\text{C}_2\text{H}_2$
- b)  $\text{C}_6\text{H}_6$
- c)  $\text{C}_2\text{H}_4$
- d)  $\text{C}_4\text{H}_8$

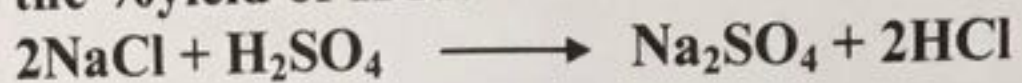
30) What is the molecular mass of 2-butanol ( $\text{C}_4\text{H}_{10}\text{O}$ ) molecules?

- a) 62.14 g/mol
- b) 72.14 g/mol
- c) 74.12 g/mol
- d) 64.12 g/mol

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A.L.H

5) When 19.0 g NaCl mixed with excess  $\text{H}_2\text{SO}_4$  and 8.95 g HCl is formed. What is the %yield of HCl?



- a) 64%
- b) 85%
- c) 75.5%
- d) 90%

6) How many milliliters are there in  $1.5 \times 10^{-12} \text{ cm}^3$ ?

- a) 1.5 mL
- b) 15 mL
- c)  $1.5 \times 10^{-12} \text{ mL}$
- d)  $1.5 \times 10^{-6} \text{ mL}$

7. Which one of these species is an anion?

- a)  $\text{Fe}^{3+}$
- d) Co
- c)  $^{16}\text{O}$
- d)  $\text{S}^{2-}$

8) An atom of the isotope Aluminium-26, consists of how many protons, neutrons, and electrons (p = proton, n = neutron, e = electron)

- a) 13p, 13n, 13e
- b) 16p, 10n, 10e
- c) 13p, 13n, 10e
- d) 13p, 13n, 26e



9) Calculate the average atomic mass of Boron (B). Which has two isotope B-10 has a mass of 10.0 amu and an abundance of 20.0% . B-11 has a mass of 11.0 amu and an abundance of 80.0%.

- a) 21.0 amu
- b) 6.941 amu
- c) 10.8 amu
- d) 8.92 amu

10) A cesium ion,  $\text{Cs}^+$ , has:

- a) 55 protons and 55 electrons.
- b) 54 protons and 55 electrons.
- c) 55 protons and 54 electrons.
- d) 55 protons and 56 electrons.

11) Which of the following is a metal ?

- a) C
- b) N
- c) F
- d) K

12) How many atoms are there in 10.5 moles of sulfur S?

- a)  $9.59 \times 10^{22}$
- b)  $9.82 \times 10^{25}$
- c)  $6.32 \times 10^{24}$
- d)  $6.02 \times 10^{23}$

13) What is the empirical formula of the compound whose molecular formula is  $C_6H_{12}O_6$ ?

- a)  $C_{12}H_{24}O_{12}$
- b)  $C_6H_{12}O_6$
- c)  $C_2H_4O_2$
- d)  $CH_2O$

14) If 5.15 g of formaldehyde occupies 6.32 mL, what is the density of formaldehyde in g/mL?

- a) 0.815 g/mL
- b)  $8.15 \times 10^{-3}$  g/mL
- c)  $8.15 \times 10^2$  g/mL
- d)  $8.15 \times 10^{-4}$  g/mL

15) How many grams of Calcium hydroxide,  $Ca(OH)_2$  are present in  $2.6 \times 10^{23}$  molecules of Calcium hydroxide,  $Ca(OH)_2$ ?

- a) 30 gram
- b) 32 gram
- c) 19.4 gram
- d) 21.3 gram

16) The formula for aluminum bromide is:

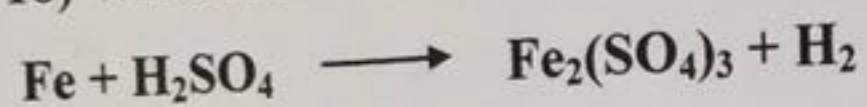
- a)  $AlBr$
- b)  $Al_3Br$
- c)  $AlBr_3$
- d)  $Al_2Br_3$



17) What temperature is  $25^{\circ}\text{C}$  when converted to kelvin?

- a) 298.15
- b) 234.15
- c) 767.15
- d) 322.15

18) What is the coefficient of  $\text{Fe}_2(\text{SO}_4)_3$  when the following equation is balanced?



- a) 1
- b) 3
- c) 2
- d) 0

19) Ammonia boils at  $-33.4^{\circ}\text{C}$ . What temperature is this in  $^{\circ}\text{F}$ ?

- a) -33.4
- b) -28.12
- c) 500
- d) 403.20

20) The name for  $\text{LiNO}_3$  is:

- a) Lithium nitride.
- b) Lithium(II) nitrite.
- c) Lithium(I) nitrate.
- d) Lithium nitrate.

21) What is the empirical formula of the compound with the following composition?

40 percent C, 6.66 percent H, 53.33 percent O

- a)  $C_2H_6O$
- b)  $C_4H_2O_3$
- c)  $CH_2O_2$
- d)  $CH_2O$

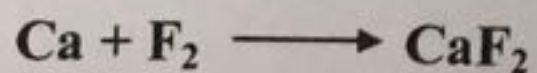
22)  $1 \times 10^{14} \text{ pm}$  is equal to how many  $\text{mm}$ ?

- a)  $1 \times 10^{-11}$
- b)  $1 \times 10^{-1}$
- c)  $1 \times 10^3$
- d)  $1 \times 10^5$

23) The correct name for  $PCl_3$  is:

- a) phosphorus trichloride.
- d) phosphorus tetrachloride.
- c) phosphorus pentachloride
- d) phosphorus hexachloride

24) What is the limiting reagent and what quantity of  $CaF_2$  results (in gram) from the reaction of 2.5g of calcium and 2.0g of fluorine?



- a)  $F_2$ , 2.78g
- b) Ca, 4.11g
- c) Ca, 3.22g
- d)  $F_2$ , 4.11g