

Diagnostic test-2

Directions:

- This test has 20 multiple-choice questions. For each question, one option is correct.
- You may use periodic table and calculator
- Periodic table is given on the last page of test.

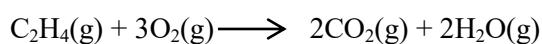
Time – 30 minutes

Question 1

How many electrons, protons, and neutrons are present in $^{56}\text{Fe}^{2+}$?

- ☐ Electron-26, Protons-26, Neutrons-30
- ☐ Electron-24, Protons-26, Neutrons-30
- ☐ Electron-26, Protons-24, Neutrons-30
- ☐ Electron-26, Protons-26, Neutrons-26

Question 2



Calculate the moles of CO_2 produced when 3.3 moles of C_2H_4 are combusted with excess of oxygen according to the given equation?

- ☐ 3.3 moles
- ☐ 9.9 moles
- ☐ 6.6 moles
- ☐ 1.7 moles

Question 3

1.6mol of N_2 gas was taken in 500ml rigid container at 300K. What is the pressure of the container in atm? ($R = 0.0821 \text{ L.atm.K}^{-1}.\text{mol}^{-1}$)

- ☐ 78.8 atm
- ☐ 39.9 atm
- ☐ 23.5 atm
- ☐ 44.6 atm

Question 4

Which group and period in the periodic table does Sulfur (Symbol-S) belong to?

- ☐ Group -15, Period - 3
- ☐ Group -16, Period - 3
- ☐ Group -17, Period - 2
- ☐ Group -15, Period - 2

Question 5

Which of the following elements is a halogen?

- ☐ Na

- ☐ Mg
- ☐ Cl
- ☐ Ar

Question 6

Which of the compounds has the highest mass percentage of oxygen?

- ☐ Na_2SO_4
- ☐ $\text{Mg}(\text{NO}_3)_2$
- ☐ KMnO_4
- ☐ Na_3PO_4

Question 7

A sample of Strontium contains three isotopes: Sr-86, Sr-87, and Sr- 88. Their relative abundance is given below

Isotopes	Isotopic Mass	Relative abundance (%)
Sr-86	86	9.9
Sr-87	87	7.1
Sr-88	88	83

Calculate the relative atomic mass of Strontium

- ☐ 87.00
- ☐ 88.21
- ☐ 87.73
- ☐ 86.45

Question 8

An ion has a mass number of 80 with proton number of 34, and electron number of 36. What is the identity of ion?

- ☐ Se
- ☐ Se^{+2}
- ☐ Se^{-2}
- ☐ Kr

Question 9

A student needs 5 moles of $\text{Ca}(\text{NO}_3)_2$ for an experiment. How much mass of $\text{Ca}(\text{NO}_3)_2$ should he weigh for this experiment?

- ☐ 187.6g
- ☐ 937.8g
- ☐ 375.1g

☐ 37.5g

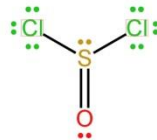
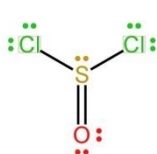
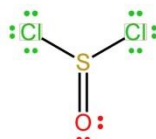
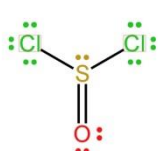
Question 10

How many molecules are present in 2 moles of CO_2 ?

- ☐ 6×10^{23} molecules
☐ 12×10^{23} molecules
☐ 18×10^{23} molecules
☐ 3×10^{23} molecules

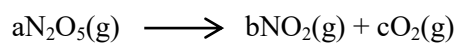
Question 11

Which of the following Lewis dot structures is correct for SOCl_2 ?



- ☐ 1
☐ 2
☐ 3
☐ 4

Question 12



What are the values of a,b, and c in a balanced equation?

- ☐ a= 2, b=4, c=2
☐ a= 2, b=4, c=1
☐ a= 2, b=1, c=2
☐ a= 1, b=4, c=2

Question 13

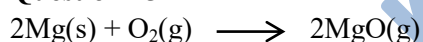
What type of substance is Graphite

- ☐ Ionic Compound
- ☐ Simple covalent molecule
- ☐ Metal
- ☐ Covalent network solid

Question 14

Metal can conduct electricity in solid phase, whereas an ionic compound can not conduct electricity in solid phase. Which of the following is a suitable option to justify these properties of substance?

- ☐ Metal has delocalised electrons in solid phase, whereas ions are fixed in a solid ionic compound.
- ☐ Metal has delocalised cations in the solid phase, whereas ions are fixed in solid ionic compound.
- ☐ An ionic compound has delocalised ions in solid phase, whereas metal does not have delocalised cations.
- ☐ An ionic compound has delocalised electrons in solid phase, whereas metal does not have delocalised electrons.

Question 15

In an experiment, Magnesium (Mg) and oxygen(O_2) react to produce a white solid product. Which of the following types of product is formed in the reaction? (Hint: Magnesium is a metal, Oxygen is a non-metal)

- ☐ Covalent
- ☐ Ionic
- ☐ Metallic
- ☐ Network solid

Question 16

What is the formula for the ionic compound “aluminium oxide”? (Aluminium is in 13th group and oxygen is in 16th group)

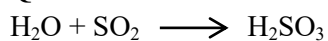
- ☐ Al_2O_3
- ☐ Al_2O
- ☐ AlO_3
- ☐ AlO_2

Question 17

What is the name of compound Na_2O ?

- ☐ Sodium dioxide
- ☐ Sodium oxide
- ☐ Sodium oxygen
- ☐ Sodium peroxide

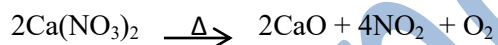
Question 18



What is the type of reaction given above?

- ☐ Decomposition reaction
- ☐ Combination reaction
- ☐ Single replacement reaction
- ☐ Double replacement reaction

Question 19



- ☐ Decomposition reaction
- ☐ Combination reaction
- ☐ Single replacement reaction
- ☐ Double replacement reaction

Question 20



How many grams of CaCl_2 are produced when 10g of Ca reacts with excess of HCl?

- ☐ 27.7g
- ☐ 13.5g
- ☐ 21.1g
- ☐ 32.4g