8.4 TEST YOURSELF

SECTION A Multiple-choice Questions (Total 10 marks)

Select the correct response and write the corresponding letter (A, B, C or D) in the brackets provided.

1. Which statement gives a correct indication of the size of atoms?

   A. A bacterium is about 10,000 times larger than an atom.
   B. Atoms are a 100 times smaller than a dust particle.
   C. A full stop is about 1000 atoms wide.
   D. Atoms are the same size as cells in living organisms. ( )

2. Which of the following only contains one kind of atom?

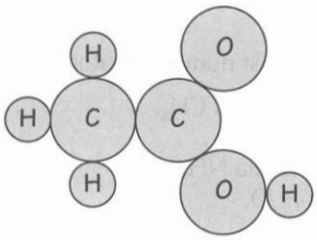
   A. A crystal of common salt
   B. A sheet of aluminium foil
   C. A speck of dust
   D. Pure water ( )

3. An aluminium atom can be represented by $^{27}_{13}Al$. Which key is correct for this atom?

	Proton	Neutron	Electron
A.	13	13	14
B.	13	14	13
C.	14	13	13
D.	14	13	14

( )

4. The diagram shows the atoms present in a molecule of ethanoic acid (vinegar).



Which key is correct for this molecule?

	Number of elements	Number of atoms
A.	3	4
B.	3	8
C.	8	3
D.	8	8

( )

5. A compound consists of _____.

A. different kinds of atoms mixed together
B. same types of atoms chemically bonded together
C. different kinds of atoms chemically bonded together
D. same type of atoms mixed together

( )

6. Which of these molecules has the same number of atoms as a carbon dioxide molecule, CO_2?

I O_3 II H_2O III HCl IV N_2O

A. I and II **B.** I, II and III **C.** I, II and IV **D.** All of these

( )

7. If the proton number of an element is subtracted from the mass number, the result is the number of _____.

A. electrons around the nucleus
B. protons and electrons in the atom
C. neutrons in the nucleus
D. neutrons and protons in the nucleus

( )

8. Which of these statements about the nucleus of an atom is **incorrect**?

   A. The nucleus is very small in comparison with the total size of the atom.
   B. Nearly all the mass of the atom is found in the nucleus.
   C. The nucleus is the central part of the atom.
   D. The nucleus always contains equal numbers of protons and neutrons ( )

9. The two atoms $^{55}_{25}Mn$ and $^{56}_{26}Fe$ have the same number of _____.

   A. electrons
   B. protons
   C. neutrons
   D. protons and neutrons ( )

10. Which of these contains the most number of atoms?

    A. Four molecules of methane gas CH_4.
    B. Six molecules of oxygen gas O_2.
    C. Three molecules of ammonia NH_3.
    D. Six molecules of water H_2O. ( )

SECTION B Structured Questions (Total 30 marks)

11. Draw a line to match the definition to the part of the atom to which it applies.

Definition		Part of atom
Positively-charged particle	•	• Nucleus
Negatively-charged particle	•	• Neutron
Small heavy central part of atom	•	• Proton
Atomic particle with no charge	•	• Electron

(4 marks)

12. A molecule is diatomic if it has two atoms, triatomic if it has three atoms and tetratomic if it has four atoms. Consider the following molecules:

    PH_3 HCl Br_2 NO_2 CO NCl_3 Cl_2O

    (a) Which of these molecules are diatomic?

    _____

    (2 marks)

    (b) Which of these molecules are triatomic?

    _____

    (2 marks)

(c) Which of these molecules are tetratomic?

_____

(2 marks)

13. Choose only from these five molecules.

CO N_2O CH_4 O_2 HNO_3

(a) Which of these molecules are made up of two elements?

_____

(3 marks)

(b) Which of these molecules has five atoms?

_____

(2 marks)

(c) Which of these molecules is **not** a compound?

_____

(1 mark)

(d) Which of these molecules is a hydrocarbon molecule?

_____

(1 mark)

(e) Which of these molecules is essential for combustion?

_____

(1 mark)

(f) Which of these molecules can act as an acid?

_____

(1 mark)

14. Complete the following word equations by filling in the spaces.

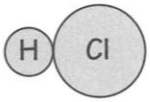
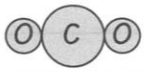
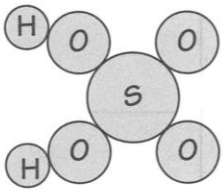
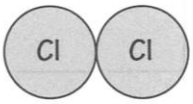
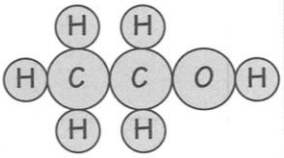
(a) sodium + _____ → sodium oxide (1 mark)

(b) hydrogen + _____ → water (1 mark)

(c) potassium + _____ → potassium chloride (1 mark)

(d) _____ + _____ → sulfur dioxide (2 marks)

15. Using the diagram of the molecule, write its chemical formula and give its chemical name (if not given).

Molecule	Chemical formula	Chemical name
		
		Hydrochloric acid
		
		Sulfuric acid
		
		Ethanol

(6 marks)