



Solutions.

Year 10 Science

Chemistry 1 Test: Elements and the Periodic Table

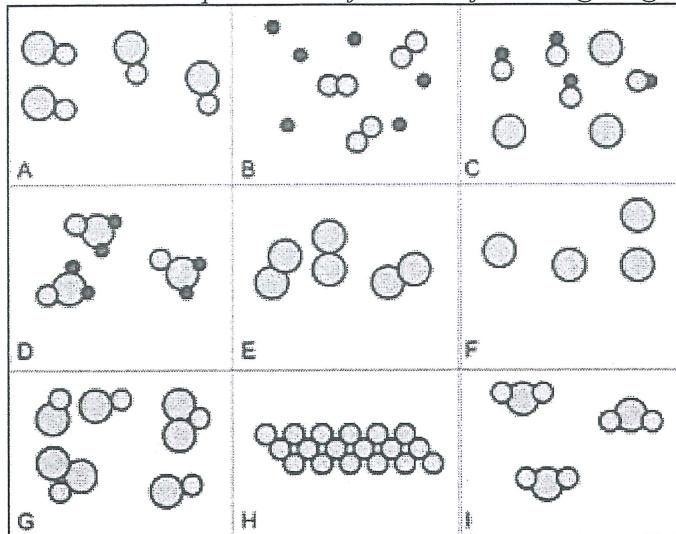
SECTION 1: MULTIPLE CHOICE (1 mark each)

Circle your answer on the multiple choice answer sheet.

1. Which of the following statements is false?
 - a) Protons are found in the nucleus and are positively charged.
 - b) Electrons move around the nucleus and contribute little mass to the atom.
 - c) Neutrons are found in the nucleus and have no charge.
 - d) The numbers of neutrons, protons and electrons are always equal in an atom.
2. An atom has 21 protons, 22 neutrons and 18 electrons. It is
 - a) an ion of titanium
 - b) a neutral atom of titanium
 - c) an isotope of calcium
 - d) an ion of scandium
3. The Mass Number of an atom is equal to
 - a) the number of protons.
 - b) the number of protons plus neutrons.
 - c) the number of protons plus neutrons plus electrons.
 - d) the average mass of atoms of one element.
4. Which statement is false about an atom of hydrogen?
 - a) It has one proton, one neutron and one electron.
 - b) It has an atomic number of 1.
 - c) It has a mass number of 1.
 - d) It has an atomic mass of approximately 1.
5. Which of the following has the most electrons in its outer shell?
 - a) Helium, He
 - b) Lithium, Li
 - c) Carbon, C
 - d) Zinc, Zn
6. On the Periodic Table, the group that an element is found in tells you
 - a) the number of protons in its nucleus.
 - b) the number of shells that contain electrons.
 - c) the number of electrons in the outer shell.
 - d) the number of neutrons in the nucleus.
7. Which scientists did not contribute to the arrangement of the modern Periodic Table
 - a) Dmitri Mendeleev
 - b) Lothar Meyer
 - c) Henry Moseley
 - d) Joshua Lodge

8. The Noble gases are all found in the last group of the periodic table because
- they are all non-metals.
 - they are all gases.
 - they are all charged.
 - they all have full electron shells.
9. Which of the following is true about a neutral atom of magnesium?
- It has 24.31 protons.
 - It has an electron configuration of 2, 8, 12.
 - It has 2 valence (outer shell) electrons.
 - It always has 12 neutrons.
10. Elements are arranged on the Periodic Table in order of
- Atomic mass
 - Melting point
 - Atomic number
 - Density
11. The most abundant element in the universe, making up 90% of all atoms is
- Hydrogen
 - Helium
 - Oxygen
 - Iron
12. Isotopes are atoms with
- the same number of protons but different numbers of electrons.
 - the same number of protons but different numbers of neutrons.
 - the same number of neutrons but different numbers of protons.
 - the same number of electrons but different numbers of neutrons.
13. The electron configuration of sodium (Na) is
- 2, 8, 18
 - 2, 8, 1
 - 11, 22.99
 - 2, 8, 6
14. The element with the electron configuration 2, 5 is
- Barium (Ba)
 - Nitrogen (N)
 - Fluorine (F)
 - Manganese (Mn)

The next three questions refer to the following diagram



15. Which of the diagrams below represent pure elements?

- a) A, D, G and I
- b) C and G
- c) E, F and H
- d) E and F

16. Diagram B shows

- a) a mixture of elements
- b) a mixture of compounds
- c) a mixture of an element and a compound
- d) a solution

17. On the Periodic Table, horizontal rows are called

- a) Shells
- b) Periods
- c) Groups
- d) Families

18. Uranium (U) is found on the Periodic Table in a special block known as the

- a) Transition metals
- b) Metalloids
- c) Lanthanides
- d) Actinides

19. The alkali metals are found in

- a) Group 1
- b) Group 2
- c) Group 14
- d) Group 18

20. Group 17 elements are referred to as

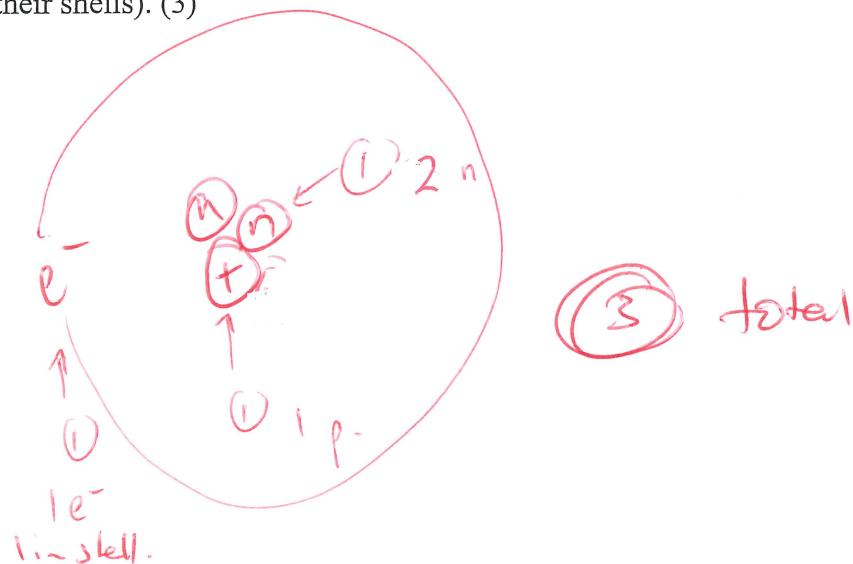
- a) Alkalines
- b) Halogens
- c) Noble gases
- d) Superheavy metals

SECTION 2: WRITTEN

Write your answers in the spaces.



1. Draw a labelled diagram of an atom of tritium $^3_1 \text{H}$, showing all the protons, neutrons and electrons (in their shells). (3)



2. Fill in the missing data for the atom in the table below (10)

Atom	$^{78}_{36} \text{Kr}$	$^{63}_{29} \text{Cu}$
Atomic number	36	29
Mass number	78	63
Number of protons	36.	29
Number of neutrons	42	34
Number of electrons	36.	29.

(1) each

(10 marks)

3. Use a periodic table to determine the electron configuration of the following elements (3)

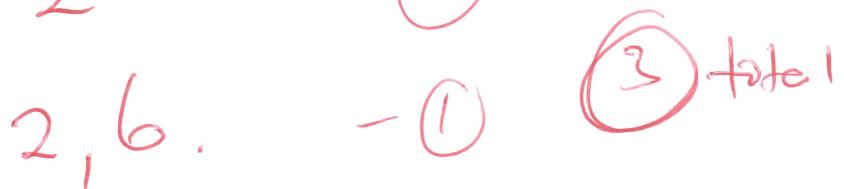
a) Silicon (Si)



b) Helium (He)



c) Oxygen (O)



END OF TEST (OUT OF 36 MARKS)

Pre-ATAR Section

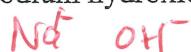
4. Explain why metals are good thermal conductors (3 marks)

→ delocalised e^- s sea of electrons - $\textcircled{1}$
→ allow transfer of kinetic energy - $\textcircled{1}$
from atom to another. - $\textcircled{1}$.

$\textcircled{3}$ total

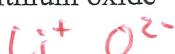
5. Write the formulae for the following ionic compounds (5 marks)

a) sodium hydroxide



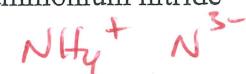
= $\textcircled{1}$

b) lithium oxide



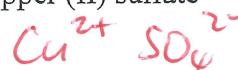
- $\textcircled{1}$

c) ammonium nitride



- $\textcircled{1}$

d) copper (II) sulfate



- $\textcircled{1}$

e) aluminium chloride



- $\textcircled{1}$

$\textcircled{5}$ total



2018 Chemistry 1 Test

Multiple Choice Answer Sheet

Name: Solutions Year: 10

Multiple Choice – 20 questions.

Circle your choice. If you change your mind, scrub your choice out and circle the one you want. If it is messy, clearly write your choice next to question.

- | | | | | |
|-----|---|---|---|---|
| 1. | A | B | C | D |
| 2. | A | B | C | D |
| 3. | A | B | C | D |
| 4. | A | B | C | D |
| 5. | A | B | C | D |
| 6. | A | B | C | D |
| 7. | A | B | C | D |
| 8. | A | B | C | D |
| 9. | A | B | C | D |
| 10. | A | B | C | D |
| 11. | A | B | C | D |
| 12. | A | B | C | D |
| 13. | A | B | C | D |
| 14. | A | B | C | D |
| 15. | A | B | C | D |
| 16. | A | B | C | D |
| 17. | A | B | C | D |
| 18. | A | B | C | D |
| 19. | A | B | C | D |
| 20. | A | B | C | D |

Correct answers: _____ / 20 questions

