

**YEAR: 10**

**SUBJECT: Science**

**Chemistry**

**Term 1 2020**

**ATAR Pathway**

**Please do not mark this paper.**

**Year 10 Chemistry Test**

**Part A: Multiple Choice 10 marks**

**Record answers in the answer booklet provided.**

1. Which is the most reactive non-metal element?
2. Sodium.
3. Potassium.
4. Chlorine.
5. Fluorine.
6. The periodic table:
7. is a systematic chart listing all known elements.
8. arranges elements from lowest to highest atomic number.
9. separates the metals and non-metals.
10. all of the above.
11. A horizontal row of elements on the periodic table is called a
12. group.
13. period.
14. family.
15. list.
16. The figure below shows the atomic symbol of element X:

15

X

7

Which of the following is the correct electron configuration for element X?

(a) 2 , 5

(b) 2 , 6

(c) 2 , 7

(d) 2 , 8, 5

1. Haematite, Fe2O3, is not found in the periodic table because
2. it has properties different from the metals in any other group.
3. it is not an element.
4. it is only a recent discovery.
5. its relative atomic mass is too great.
6. The table below shows information about particles A and B

|  |  |  |
| --- | --- | --- |
| Particle | Proton number | Electron arrangement |
| A | 11 | 2 , 8 |
| B | 19 | 2 , 8 , 8 |

Based on the information provided, A and B are:

1. positive ions.
2. negative ions.
3. noble gases.
4. isotopes of the same element.
5. When atoms lose electrons, they form:
6. negative ions.
7. positive ions.
8. neutral ions.
9. Positive and negative ions, depending on their position in the Periodic Table.

8. In which group of the periodic table are the halogens found? Group

a) 1

b) 2

c) 17

d) 18

9. Elements in the same group of the periodic table have

a) different chemical and physical properties

b) similar chemical and physical properties

c) similar physical properties

d) different chemical properties

10. Which of the following is **not** a property of metals?

a) Good conductors of electricity.

b) Good conductors of heat.

c) Low melting and boiling points.

d) High melting and boiling points.

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**Chemistry Test ATAR Pathway**

**ANSWER BOOKLET**

**NAME:**

**CLASS: DATE:**

**ASSESSMENT KEY**

|  |  |
| --- | --- |
| **I CAN STATEMENTS** | **QUESTIONS** |
| **MUST**  Uses the position of elements in the periodic table to make some correct predictions about their observable properties. | 1, 2, 3, 5, 7, 8,9, 10, 11, 12, 13, 14, 15,16, 17,18, 19, 20 |
| **SHOULD**  Uses the position of elements in the periodic table to determine their atomic structure and electron configuration, and makes predictions about chemical properties and reactivity. | 4, 6, 12, 16, 17, 18, 21 |
| **COULD**  Uses the position of elements in the periodic table to determine their atomic structure and electron configuration, and makes predictions about bonding types and reactivity of elements. | 15, 16, 17,18 |

**Multiple Choice Short Answer Extended Answer Total**

**/52.5**

**/5**

**/37.5**

**/10**

**SECTION ONE: Multiple choice answers**

**Cross (X) through the correct answer.**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **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** |

**Part B: Short Answer 43 marks**

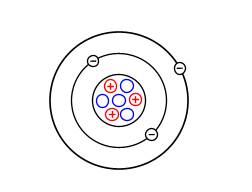
11. Match the words below to their descriptions in the table: (3 marks)

Atom Electron Proton

Nucleus Neutron Ion

|  |  |
| --- | --- |
| Word | Description |
|  | Negatively charged particles that orbits around the nucleus of an atom |
|  | Central part of an atom containing protons and neutrons |
|  | Smallest piece of ordinary matter |
|  | Positively charged sub-atomic particle |
|  | Charged atom |
|  | Sub-atomic particle that has no charge |

12. Label the model of the atom below: (2.5 marks)



This is an atom of the element: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

13. An atom of iodine is shown on the **right** (3 marks)

1. How many protons are in this atom? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
2. How many neutrons are in this atom? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
3. How many electrons are in this atom? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
4. What is the mass number of this atom? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
5. What is the atomic number of this atom? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
6. What is the ionic formula of iodine? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

14. In the Periodic Table where do we find the following: (use the following directions: rows, columns, middle, left/right or top/bottom) (3.5 marks)

1. Periods \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
2. Groups \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
3. Metals \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
4. Non-metals \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
5. Reactive metals \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
6. Reactive non-metals \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
7. Transitional Metals \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

15. Match the group number to its group name. (2.5 marks)

Group I Noble Gases

Group 2 Alkali Metals

Group 4 Alkaline Earth Metals

Group 7/17 Carbon Group

Group 8/18 Halogens

16. Complete the following table (4 marks)

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Element** | **Symbol** | **Atomic number** | **Number of electrons** | **Electron shell diagram** | **Electron configuration** |
| Sodium | Na |  |  |  |  |

17. Complete the following table: (5 marks)

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Element** | **Symbol** | **Atomic number** | **Number of electrons** | **Electron shell diagram** | **Electron configuration** | **Type(s) of bonding** |
| Chlorine  ion | Cl- |  |  |  |  |  |

18. There are groups on the periodic table with special characteristics. These are groups 1, 17, 18 on

the periodic table. Complete the table below. (9 marks)

|  |  |  |  |
| --- | --- | --- | --- |
| **Group** | **Special name** | **Properties** | **Reactivity** |
| 1 |  |  |  |
| 17 |  |  |  |
| 18 |  |  |  |

19. Give a use of the following metals by listing describing their property that makes it possible. (3 marks)

***EXAMPLE***

*Aluminium*

*Use: Used in boats*

*Property: forms protective layer that doesn’t corrode.*

1. Copper

Use: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Property:

|  |
| --- |
|  |
|  |
|  |

1. Gold

Use: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Property:

|  |
| --- |
|  |
|  |
|  |

**Part C: Extended answer** **(5 marks)**

Boiling point (K)

Use the graph below the answer the following questions.

1. Explain the trend in the data. (2 marks)

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

1. Explain why the above elements do not react with any other element. Use a diagram in your answer. **(P.T.O)** (3 marks)

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**End of Test**