

**YEAR: 10**

**SUBJECT: Science**

**Chemistry Term 1**

**Please do not mark this paper.**

**Year 10 Chemistry Test Multiple Choice. 20 marks**

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

1. An element can be defined as:
   1. a mixture of atoms.
   2. two or more different atoms joined together.
   3. a group of identical atoms.
   4. none of the above.

2. Which of the following best describes the smallest particle of many substances that can exist by itself?

(a) An acid.

(b) A molecule.

(c) An electron.

(d) A solid.

3. The periodic table:

(a) is a systematic chart listing all known elements

(b) arranges elements from lowest to highest atomic number

(c) separates the metals and non-metals

(d) all of the above

4. A vertical column of elements on the periodic table is called a

(a) series

(b) period

(c) list

(d) group

5. A horizontal row of elements on the periodic table is called a

(a) group

(b) period

(c) family

(d) list

6. Haematite, Fe2O3, is not found in the periodic table because

(a) it has properties different from the metals in any other group

(b) it is not an element

(c) it is only a recent discovery

(d) its relative atomic mass is too great

7. Which of the following has an atomic number of 12 and has 2 electrons in its valence shell?

(a) Be

(b) C

(c) Na

(d) Mg

8. The label below contains information about an unknown metal:

UNKNOWN METAL, X

Most common salts

XPO4

X2O3

XCl3

How many valence electrons does the unknown metal have?

(a) 1

(b) 3

(c) 4

(d) 6

9. Nitrogen N is in period 2, group 15. Which of the following elements would have properties most similar to nitrogen?

(a) phosphorus P (period 3, group 15)

(b) oxygen O (period 2, group 16)

(c) neon Ne (period 2, group 18)

(d) sodium Na, because its symbol also starts with N

10. In one molecule of CaCO3  there will be:

(a) 3 atoms of carbon.

(b) 1 atom of chlorine.

(c) 1 atom of calcium.

(d) 1 atom of oxygen.

11. The formula for sodium acetate is NaCH3COO. The valence of the acetate ion is:

(a) +2

(b) –1

(c) –2

(d) +3

12. 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

13. 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:

(a) positive ions

(b) negative ions

(c) noble gases

(d) isotopes of the same element

14. The formula of a chloride salt of ‘M’ is MCl2. What is the formula of a sulfate

salt of ‘M’?

(a) MSO4

(b)M2SO4

(c)M(SO4)

(d) It is not possible to get a sulfate salt of M

15. Which of the following pairs of elements forms a compound by sharing electrons?

(a) sulfur and lead

(b) magnesium and oxygen

(c) nitrogen and bromine

(d) potassium and iodine

16. In a neutral atom, the number of protons is equal to the number of:

(a) neutrons.

(b) protons + neutrons.

(c) 8

(d) electrons.

17. Which is the most reactive non-metal element?

(a) sodium.

(b) potassium.

(c) chlorine.

(d) fluorine.

18. Where are an atom’s valence electrons located?

(a) inner shell.

(b) middle shell.

(c) nucleus.

(d) outer shell.

19. Which group in the periodic table contains only gases? Group

(a) 1

(b) 2

(c) 7

(d) 8

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

(a) 1

(b) 2

(c) 7

(d) 8.

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**Term One 2017 Chemistry Test ANSWER BOOKLET**

**NAME:**

**FORM: DATE:**

**Multiple Choice Short Answer Total**

**/30**

**/20**

**/30**

**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** |
| **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** |

**WRITTEN SECTION 20 MARKS**

1. Name each of the following.
   1. CaCO3 \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
   2. Fe (OH)3\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
   3. LiF\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
   4. AlCl3\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

(2 marks)

1. Write formula for each of the following compounds
   1. Zinc chloride\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
   2. Calcium carbonate.\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
   3. Magnesium chloride\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
   4. calcium phosphate\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

(2 marks)

3. One of the isotopes of chlorine is 35 Cl.

17

Answer the following questions in relation to this isotope:

(a) The mass number is\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

(b) The atomic number is\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

(c) The number of neutrons in the nucleus is\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

(d) The number of electrons in a neutral atom is\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

(2 marks)

4. What is the definition of a catalyst?

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

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(1 mark)

4. Complete the following table: (5 marks)

|  |  |  |
| --- | --- | --- |
| **ELEMENT** | **ELECTRON DOT DIAGRAM** | **ELEMENT SYMBOL, ATOMIC NUMBER and MASS NUMBER IN ORDER.** |
| Oxygen |  |  |
| Magnesium |  |  |

5. State the period and group of the Periodic Table of the elements with the following

electron arrangements: (5 marks)

|  |  |  |
| --- | --- | --- |
| Electron arrangement | Period | Group |
| 2,2 |  |  |
| 2,8 |  |  |
| 2,8,5 |  |  |
| 2,8,8,1 |  |  |
| 2,8,3 |  |  |

6. Explain, in terms of atomic structure, why helium is used in balloons instead of hydrogen.

(3 marks)

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

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**Extended answer.** **(10 marks)**

1. Reaction rates can be increased in a number of ways.

Name two of them and explain why they increase the rate of the reaction. (4 marks)

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

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2. There are groups on the periodic table with special characteristics. These are groups

1, 17, 18 on the periodic table

Name each of these groups and outline the special characteristics demonstrated by each of

them. (6 marks)

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

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