This is a Class 1 exam

Lebanon Evangelical School for Boys and Girls

Lebanon Evangelical School
for Boys and Girls Loueizeh - Baabda

SE01 Exam

09NOV2026

Do NOT write in this box. Your MARK will be placed here.

Subject :	A Level : Chemistry 1
Class :	9A
Teacher :	Lina Sobh
Duration :	1 hour

A periodic table is provided on the first page.

You are to answer the questions to this exam on : this exam paper

Your name :		*Time taken to complete exam*
Your Class :		
Exam Room :		
How many sheets, including cover sheet :		

- Do not open this paper until the teacher in charge instructs you to do so.
- The most important thing to remember in taking an exam is NEVER PANIC.
- If you are caught cheating in this exam, you will be awarded zero for ALL exams that are taken on this day.

The Periodic Table of the Elements

1	2											3	4	5	6	7	0
							1 H hydrogen 1										4 He helium 2
7 Li lithium 3	9 Be beryllium 4											11 B boron 5	12 C carbon 6	14 N nitrogen 7	16 O oxygen 8	19 F fluorine 9	20 Ne neon 10
23 Na sodium 11	24 Mg magnesium 12											27 Al aluminium 13	28 Si silicon 14	31 P phosphorus 15	32 S sulfur 16	35.5 Cl chlorine 17	40 Ar argon 18
39 K potassium 19	40 Ca calcium 20	45 Sc scandium 21	48 Ti titanium 22	51 V vanadium 23	52 Cr chromium 24	55 Mn manganese 25	56 Fe iron 26	59 Co cobalt 27	59 Ni nickel 28	63.5 Cu copper 29	65 Zn zinc 30	70 Ga gallium 31	73 Ge germanium 32	75 As arsenic 33	79 Se selenium 34	80 Br bromine 35	84 Kr krypton 36
85 Rb rubidium 37	88 Sr strontium 38	89 Y yttrium 39	91 Zr zirconium 40	93 Nb niobium 41	96 Mo molybdenum 42	[98] Tc technetium 43	101 Ru ruthenium 44	103 Rh rhodium 45	106 Pd palladium 46	108 Ag silver 47	112 Cd cadmium 48	115 In indium 49	119 Sn tin 50	122 Sb antimony 51	128 Te tellurium 52	127 I iodine 53	131 Xe xenon 54
133 Cs caesium 55	137 Ba barium 56	139 La* lanthanum 57	178 Hf hafnium 72	181 Ta tantalum 73	184 W tungsten 74	186 Re rhenium 75	190 Os osmium 76	192 Ir iridium 77	195 Pt platinum 78	197 Au gold 79	201 Hg mercury 80	204 Tl thallium 81	207 Pb lead 82	209 Bi bismuth 83	[209] Po polonium 84	[210] At astatine 85	[222] Rn radon 86
[223] Fr francium 87	[226] Ra radium 88	[227] Ac* actinium 89	[261] Rf rutherfordium 104	[262] Db dubnium 105	[266] Sg seaborgium 106	[264] Bh bohrium 107	[277] Hs hassium 108	[268] Mt meitnerium 109	[271] Ds darmstadtium 110	[272] Rg roentgenium 111	Elements with atomic numbers 112-116 have been reported but not fully authenticated						

Key

relative atomic mass
atomic symbol
name
atomic (proton) number

**** The lanthanoids (atomic numbers 58-71) and the actinoids (atomic numbers 90-103) have been omitted.***

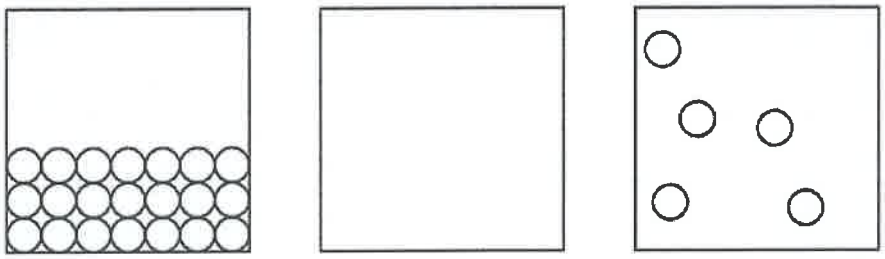
The relative atomic masses of copper and chlorine have not been rounded to the nearest whole number.

Answer ALL questions.

Some questions must be answered with a cross in a box ☒. If you change your mind about an answer, put a line through the box ☒ and then mark your new answer with a cross ☒.

1 This question is about the three states of matter, solid, liquid and gas.

(a) The diagram shows how particles of a substance are arranged in two of these states.



(i) Complete the diagram to show how particles are arranged in the liquid state.
(Draw 10 particles) (1)

(ii) Identify the state of matter that contains particles with the least energy. (1)

_____

_____

(b) The table shows two changes of state.

Complete the table by giving the name of each change of state. (2)

Change of state	Name
solid to liquid	
solid to gas	

(c) Explain why hot water evaporates more quickly than cold water (2)

_____

_____

(d) Describe the arrangement and movement of particles in a solid. (2)

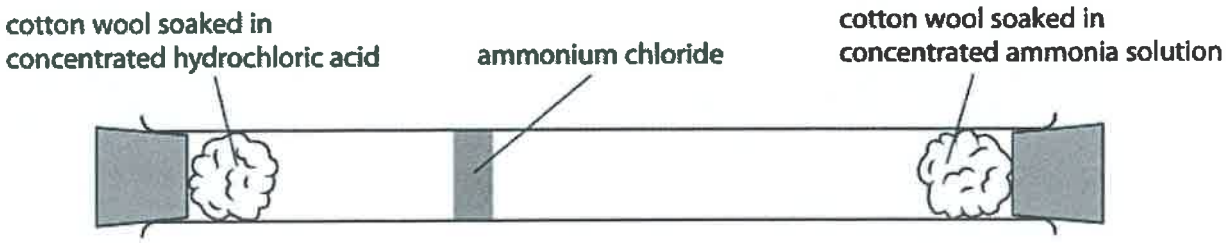
_____

_____

(Total for Question 1= 8 marks)

2 This question is about ammonium chloride.

The diagram shows the formation of ammonium chloride in a glass tube.



(i) State the name given to the spreading out of gas particles. (1)

_____

_____

(ii) Explain how the mean speed of ammonia molecules compares

With the mean speed of hydrogen chloride molecules. (2)

_____

_____

_____

_____

(iii) Gas particles travel very quickly.

Give two reasons why it takes several minutes for the ammonium chloride to form. (2)

1 _____

_____

2 _____

_____

(Total for Question 2= 5 marks)

3 Use the Periodic Table to answer these questions.

(i) Give the name of the element with atomic number 16 (1)

_____

(ii) Give the name of the element with relative atomic mass 9 (1)

_____

(iii) Give the name of the element in Group 3 and Period 2 (1)

_____

(iv) Give the electronic configuration of an atom of silicon. (1)

_____

(Total for Question 3 = 4 marks)

4 Table 1 shows some relative masses and charges of subatomic parrticles.

(a) Complete table 1 by giving the missing information. (2)

	Electron	Proton	Neutron
Relative mass	0.0005		
Relative charge			0

Table 1

(b) Table 2 gives the number of protons, neutrons and electrons in atoms and ions of some elements.

The letters are not the symbols of the elements.

Atom or ion	Protons	Neutrons	Electrons
P	3	4	2
Q	5	5	5
R	5	6	5
S	7	7	7
T	8	8	8
U	8	8	10

Table 2

(i) What is the atomic number of P in table 2? (1)

- ☐ **A** 2
- ☐ **B** 3
- ☐ **C** 4
- ☐ **D** 7

(ii) What is the mass number of U in table 2 (1)

- ☐ **A** 8
- ☐ **B** 16
- ☐ **C** 18
- ☐ **D** 26

(iii) Give the letter in table 2 that represents an element in Group 5 of the Periodic Table. (1)

_____

(c) Q and R represent isotopes of the same element.

(i) Explain, in terms of subatomic particles, why Q and R are isotopes. (2)

_____

_____

_____

_____

(ii) A sample containing the isotopes Q and R has this percentage composition by mass. (3)

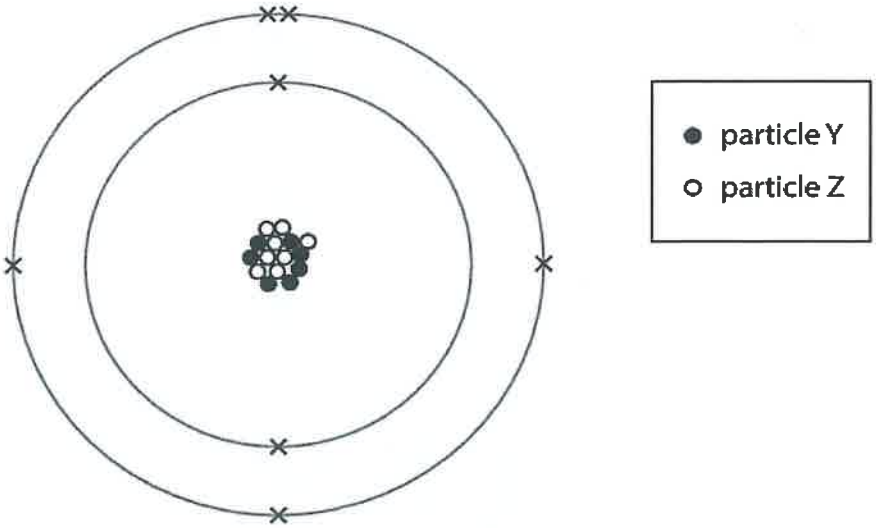
Q = 20.6 % R = 79.4 %

Calculate the relative atomic mass (Ar) of this sample of the element. Give your answer to one decimal place.

Ar = _____

(Total for Question 4 = 10 mark)

5 The diagram shows the structure of an atom of an element.



(a) Give the name of particle Z. (1)

(b) Give the mass number of this atom. (1)

(c) Give the group number and period number for this element. (2)

Group number

Period number

(d) Give a reason why atoms of this element have no overall charge. (1)

(e) (i) Identify this element. (1)

(ii) Give the charge on an ion of this element. (1)

(Total for Question 5 = 7 marks)

6 Fluorine is an element found in Group 7 of the Periodic Table.

(a) (i) Give the electronic configuration of an atom of fluorine. (1)

(ii) Which period does fluorine belong to? (1)

- ☐ A Period 1
- ☐ B Period 2
- ☐ C Period 3
- ☐ D Period 7

(c) Fluorine forms fluoride ions when reacted with a metal. (1)

(i) Give the electronic configuration of Lithium atom.

(ii)Describe the changes in the electronic configurations of a lithium atom and a fluorine atom when they form lithium fluoride. (2)

Fluorine

Lithium

(iii) Give the formula and the name of the ionic compound formed. (1)

(d) These are the symbols for the two isotopes of lithium.

In terms of sub-atomic particles, give one similarity and one difference between the two isotopes. (2)

Similarity

Difference

(Total for Question 6 = 8 marks)

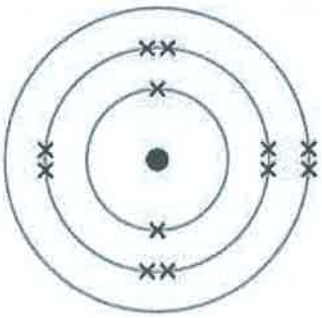
7 Magnesium chloride ($MgCl_2$) is an ionic compound.

The magnesium ions and chloride ions are held together by ionic bonding.

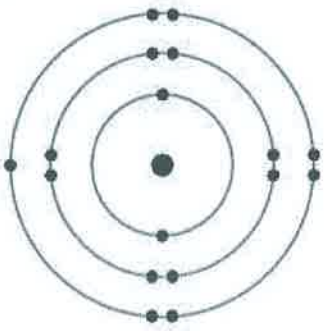
(a) (i)State the meaning of ionic bonding. (2)

Magnesium chloride forms when magnesium reacts with chlorine.

The diagram shows the arrangement of electrons in a magnesium atom and in a chlorine atom.



magnesium atom



chlorine atom

(ii) Describe, in terms of electrons, what happens when magnesium chloride forms. (2)

(b) Identify the group whose atoms form ions with a charge of (+2) ? (1)

- ☐ Group 1
- ☐ Group 2
- ☐ Group 3
- ☐ Group 7

(c) Identify the group whose atoms form ions with a charge of (-1) ? (1)

- ☐ Group 1
- ☐ Group 2
- ☐ Group 3
- ☐ Group 7

(d) (i) Give the number of the group that contains the noble gases. (1)

(ii) Find each of the following elements in the periodic table and give the number of electrons in their outer energy level. (1)

Gallium; Ga

Bismuth; Bi

(Total for Question 7= 8 marks)

Total For Paper = 50 Marks

The Periodic Table of the Elements

1	2											3	4	5	6	7	0
							1 H hydrogen 1										4 He helium 2
7 Li lithium 3	9 Be beryllium 4											11 B boron 5	12 C carbon 6	14 N nitrogen 7	16 O oxygen 8	19 F fluorine 9	20 Ne neon 10
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[223] Fr francium 87	[226] Ra radium 88	[227] Ac* actinium 89	[261] Rf rutherfordium 104	[262] Db dubnium 105	[266] Sg seaborgium 106	[264] Bh bohrium 107	[277] Hs hassium 108	[268] Mt meitnerium 109	[271] Ds darmstadtium 110	[272] Rg roentgenium 111	Elements with atomic numbers 112-116 have been reported but not fully authenticated						

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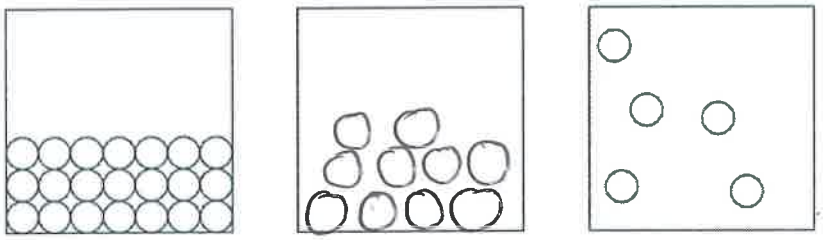
The relative atomic masses of copper and chlorine have not been rounded to the nearest whole number.

Answer ALL questions.

Some questions must be answered with a cross in a box ☒. If you change your mind about an answer, put a line through the box ☒ and then mark your new answer with a cross ☒.

1 This question is about the three states of matter, solid, liquid and gas.

(a) The diagram shows how particles of a substance are arranged in two of these states.



(i) Complete the diagram to show how particles are arranged in the liquid state.
(Draw 10 particles) (1)

(ii) Identify the state of matter that contains particles with the least energy. (1)

Solid

(b) The table shows two changes of state.

Complete the table by giving the name of each change of state. (2)

Change of state	Name
solid to liquid	Melting
solid to gas	Sublimation

(c) Explain why hot water evaporates more quickly than cold water (2)

Particles in hot water have more kinetic energy, particles can move faster and overcome/break the intermolecular forces between water molecules.

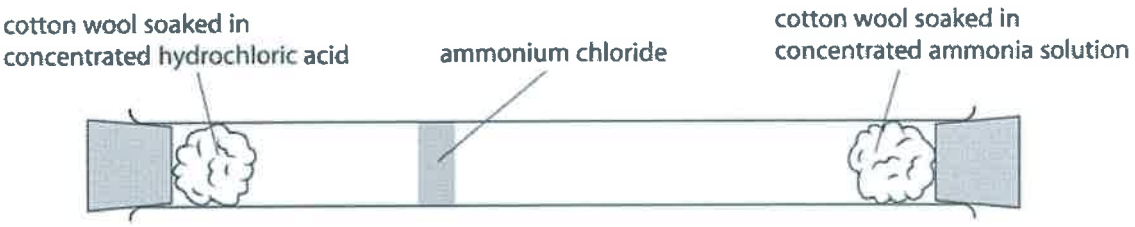
(d) Describe the arrangement and movement of particles in a solid. (2)

Particles in a solid are regularly arranged and can only vibrate around a fixed position.

(Total for Question 1= 8 marks)

2 This question is about ammonium chloride.

The diagram shows the formation of ammonium chloride in a glass tube.



(i) State the name given to the spreading out of gas particles. (1)

Diffusion (1)

(ii) Explain how the mean speed of ammonia molecules compares

With the mean speed of hydrogen chloride molecules. (2)

The molecules/particles of ammonia move/diffuse (1)
faster, this is shown that by the formation
of ammonium chloride nearer to the HCl/ (1)
the ammonia has travelled further in the same time.

(iii) Gas particles travel very quickly.

Give two reasons why it takes several minutes for the ammonium chloride to form. (2)

1 ~~Gas~~ Liquid particles take time to evaporate. (1)

2 Gas particles collide with air particles/ (1)
each other.

(Total for Question 2= 5 marks)

3 Use the Periodic Table to answer these questions.

(i) Give the name of the element with atomic number 16 (1)

Sulfur (1)

(ii) Give the name of the element with relative atomic mass 9 (1)

Beryllium (1)

(iii) Give the name of the element in Group 3 and Period 2 (1)

Boron (1)

(iv) Give the electronic configuration of an atom of silicon. (1)

2,8,4 (1)

(Total for Question 3 = 4 marks)

4 Table 1 shows some relative masses and charges of subatomic parrticles.

(a) Complete table 1 by giving the missing information. (2)

	Electron	Proton	Neutron
Relative mass	0.0005	1	1 (1)
Relative charge	−1	+1	0 (1)

Table 1

(b) Table 2 gives the number of protons, neutrons and electrons in atoms and ions of some elements.

The letters are not the symbols of the elements.

Atom or ion	Protons	Neutrons	Electrons
P	3	4	2
Q	5	5	5
R	5	6	5
S	7	7	7
T	8	8	8
U	8	8	10

Table 2

(i) What is the atomic number of P in table 2? (1)

- ☐ **A** 2
- ☒ **B** 3 (1)
- ☐ **C** 4
- ☐ **D** 7

(ii) What is the mass number of U in table 2 (1)

- ☐ **A** 8
- ☒ **B** 16 (1)
- ☐ **C** 18
- ☐ **D** 26

(iii) Give the letter in table 2 that represents an element in Group 5 of the Periodic Table. (1)

S (1)

(c) Q and R represent isotopes of the same element.

(i) Explain, in terms of subatomic particles, why Q and R are isotopes. (2)

Q and R have the same number of protons (1) both have 5 protons (1), but different numbers of neutrons (1) Q has 5 neutrons and R has 6 neutrons. (1)

(ii) A sample containing the isotopes Q and R has this percentage composition by mass. (3)

Q = 20.6 % R = 79.4 %

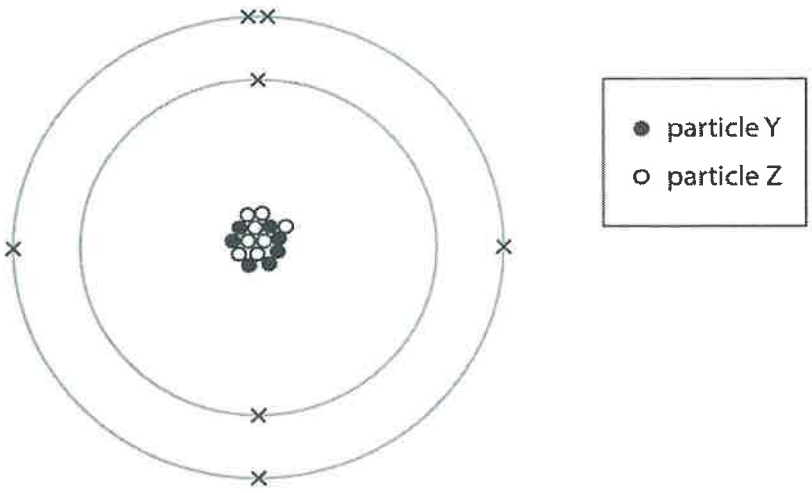
Calculate the relative atomic mass (Ar) of this sample of the element. Give your answer to one decimal place.

$$R.A.M = \frac{(20.6 \times 10) + (79.4 \times 11)}{100} = 10.8$$ (1) (1) (1)

Ar = 10.8

(Total for Question 4 = 10 mark)

5 The diagram shows the structure of an atom of an element.



(a) Give the name of particle Z. (1)

neutron (1)

(b) Give the mass number of this atom. (1)

15 (1)

(c) Give the group number and period number for this element. (2)

Group number 5 (1)

Period number 2 (1)

(d) Give a reason why atoms of this element have no overall charge. (1)

Each atom has the same number of protons and electrons (1) / each atom has 7 protons and 7 electron

(e) (i) Identify this element. (1)

Nitrogen (1)

(ii) Give the charge on an ion of this element. (1)

3^- (1)

(Total for Question 5 = 7 marks)

6 Fluorine is an element found in Group 7 of the Periodic Table.

(a) (i) Give the electronic configuration of an atom of fluorine. (1)

$_9$F: 2,7 (1)

(ii) Which period does fluorine belong to? (1)

- ☐ A Period 1
- ☒ B Period 2 (1)
- ☐ C Period 3
- ☐ D Period 7

(c) Fluorine forms fluoride ions when reacted with a metal. (1)

(i) Give the electronic configuration of Lithium atom.

$_3$Li: 2,1 (1)

(ii)Describe the changes in the electronic configurations of a lithium atom and a fluorine atom when they form lithium fluoride. (2)

Fluorine

Flourine changes from F: 2,7 to F: 2,8 (1)
Flourine gains one electron

Lithium

Lithium changes from Li: 2,1 to Li^+: 2 (1)
Lithium loses one electron.

(iii) Give the formula and the name of the ionic compound formed. (1)

LiF : Lithium Flouride. (1)

(d) These are the symbols for the two isotopes of lithium.

In terms of sub-atomic particles, give one similarity and one difference between the two isotopes. (2)

Similarity

The isotopes have the same number of protons (1)

Difference

The isotopes have different number of neutrons. (1)

(Total for Question 6 = 8 marks)

7 Magnesium chloride ($MgCl_2$) is an ionic compound.

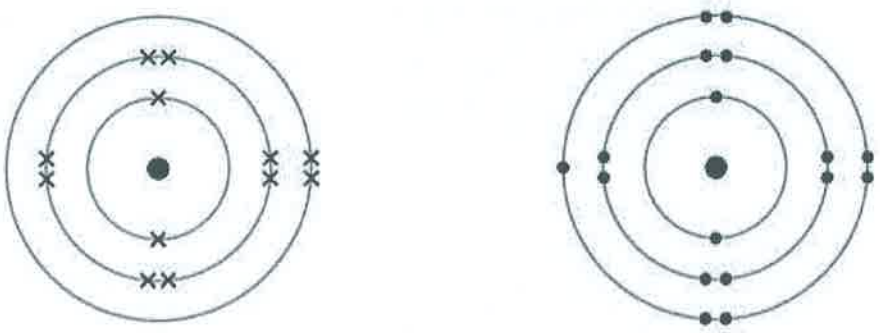
The magnesium ions and chloride ions are held together by ionic bonding.

(a) (i)State the meaning of ionic bonding. (2)

Ionic bonding is the electrostatic attraction/forces between oppositely charged ions. (2)

Magnesium chloride forms when magnesium reacts with chlorine.

The diagram shows the arrangement of electrons in a magnesium atom and in a chlorine atom.



magnesium atom **chlorine atom**

(ii) Describe, in terms of electrons, what happens when magnesium chloride forms. (2)

Magnesium loses electrons and Chlorine gains electrons (1), one atom of magnesium loses two electrons and two atoms of chlorine each gain one electron. (1)

(b) Identify the group whose atoms form ions with a charge of (+2) ? (1)

- ☐ Group 1
- ☒ Group 2
- ☐ Group 3
- ☐ Group 7

(c) Identify the group whose atoms form ions with a charge of (-1) ? (1)

- ☐ Group 1
- ☐ Group 2
- ☐ Group 3
- ☒ Group 7

(d) (i) Give the number of the group that contains the noble gases. (1)

Group 0/8

(ii) Find each of the following elements in the periodic table and give the number of electrons in their outer energy level. (1)

Gallium; Ga 3

Bismuth; Bi 5

(Total for Question 7= 8 marks)

Total For Paper = 50 Marks