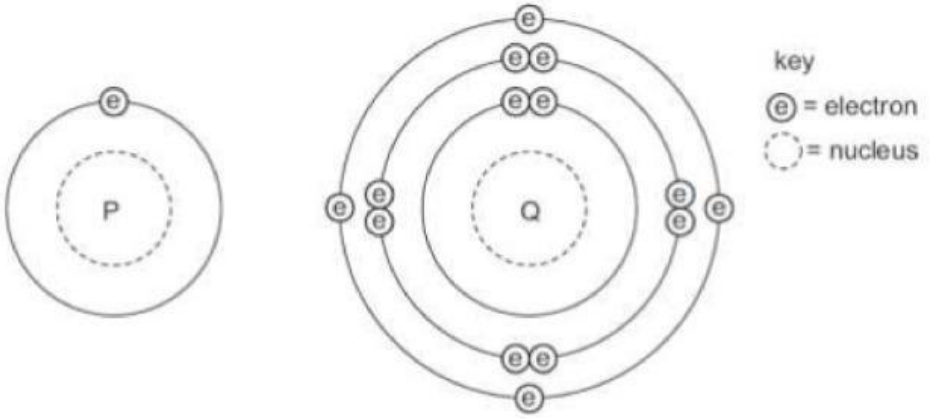
Name ..... Class ..... No.....

1.

The diagram shows the electronic structures of atoms P and Q.



P and Q combine to form a molecule.

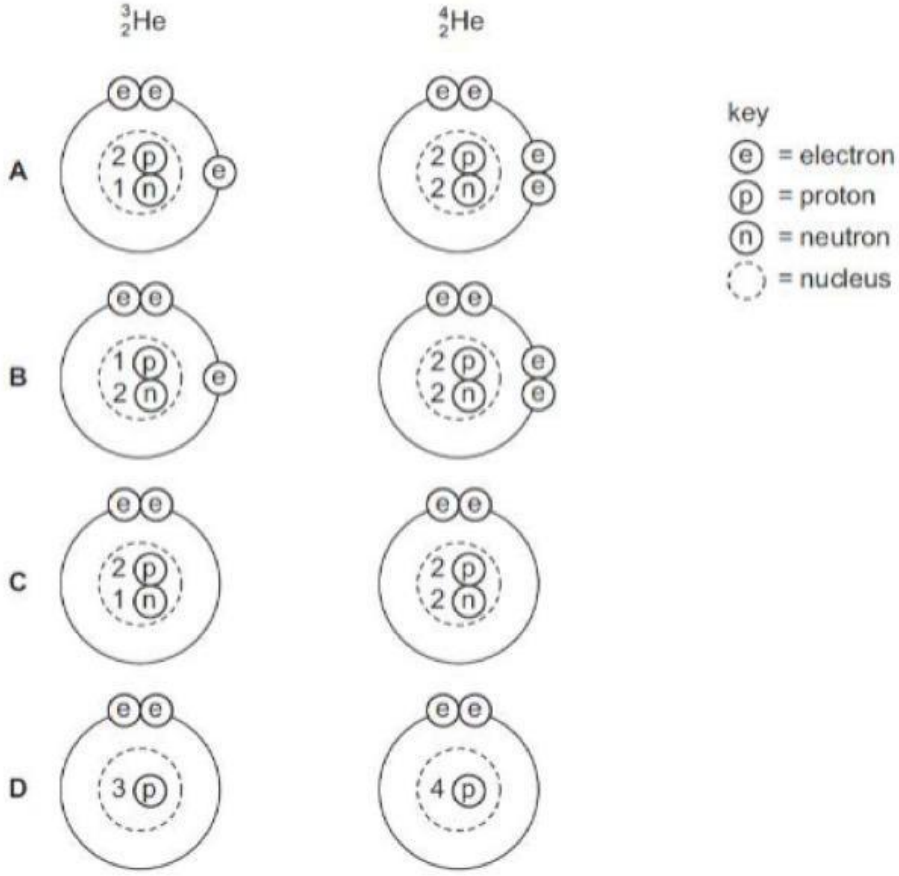
What is the formula of this molecule?

A PQ_4 **B** PQ **C** P_2Q **D** P_4Q

2.

Two isotopes of helium are $^{3}_{2}He$ and $^{4}_{2}He$.

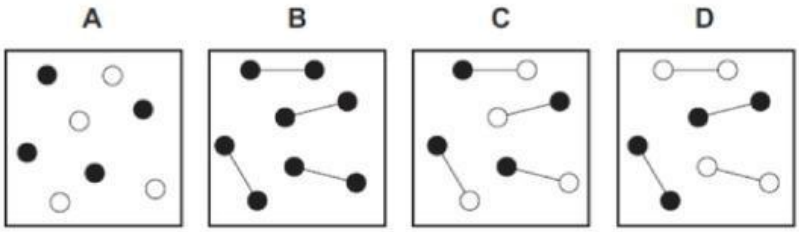
Which two diagrams show the arrangement of particles in these two isotopes?



3.

Two elements, represented by ○ and ●, form a compound.

Which diagram shows molecules of the compound?



4.

The table describes the structures of four particles.

particle	number of protons	number of neutrons	number of electrons
O	8	8	8
O^{2-}	8	8	**X**
Na	11	**Y**	11
Na^{+}	11	12	**Z**

What are the correct values of **X**, **Y** and **Z**?

	X	**Y**	**Z**
A	9	11	10
B	9	11	11
C	10	12	10
D	10	12	11

5.

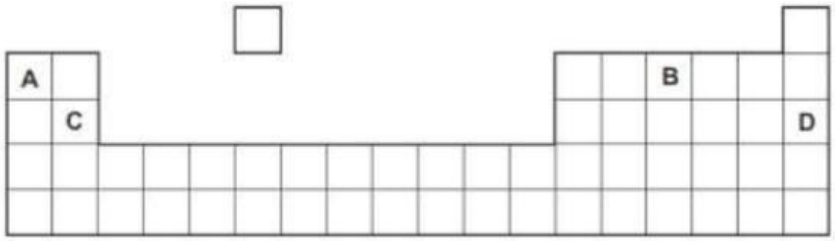
Which two elements react together to form an ionic compound?

element	electronic structure
W	2,4
X	2,8
Y	2,8,1
Z	2,8,7

A W and X **B** X and Y **C** Y and Z **D** Z and W

6.

The diagram shows part of the Periodic Table.



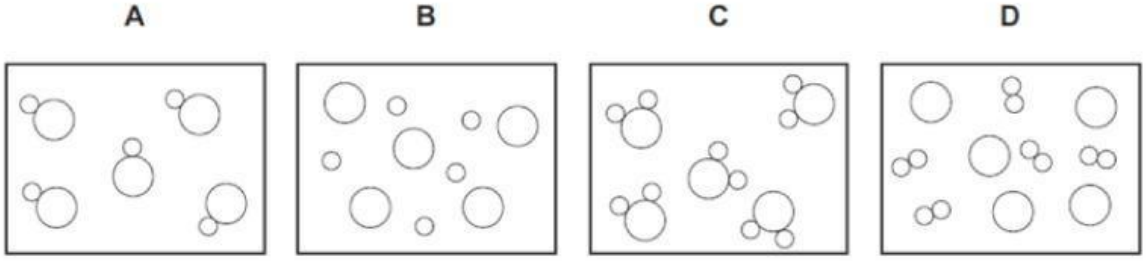
Which element is correctly matched with its electronic structure?

	electronic structure
A	2,8,1
B	2,4
C	2,8,2
D	2,8

7.

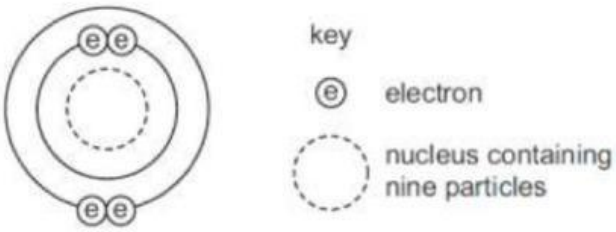
In the diagrams, circles of different sizes represent atoms of different elements.

Which diagram represents hydrogen chloride gas?



8.

The diagram shows an atom.



What is the proton number and neutron number of the atom?

	proton number	neutron number
A	4	5
B	4	9
C	5	4
D	5	9

9.

The nucleon number and proton number of the lithium atom are shown by the symbol $^{7}_{3}Li$.

What is the correct symbol for the lithium ion in lithium chloride?

A $^{6}_{2}Li^{-}$ **B** $^{6}_{3}Li^{+}$ **C** $^{7}_{3}Li^{+}$ **D** $^{7}_{3}Li^{-}$

10.

Element X has a nucleon (mass) number of 19 and a proton (atomic) number of 9.

To which group in the Periodic Table does it belong?

A I **B** III **C** VII **D** 0

11.

The table shows the structure of different atoms and ions.

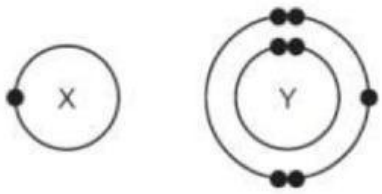
particle	proton number	nucleon number	number of protons	number of neutrons	number of electrons
Mg	12	24	12	W	12
Mg^{2+}	X	24	12	12	10
F	9	19	9	Y	9
F^{-}	9	19	9	10	Z

What are the values of W, X, Y and Z?

	W	X	Y	Z
A	10	10	9	9
B	10	12	10	9
C	12	10	9	10
D	12	12	10	10

12.

The electronic structures of atoms X and Y are shown.



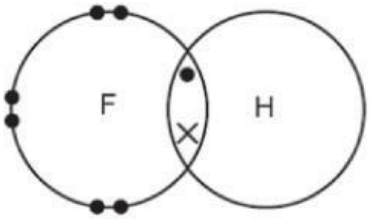
X and Y form a covalent compound.

What is its formula?

A XY_5 **B** XY_3 **C** XY **D** X_3Y

13.

The diagram shows a molecule of hydrogen fluoride.



In the molecule hydrogen fluoride, HF,

A the hydrogen and fluorine share a pair of electrons.

B the hydrogen and fluorine share a pair of protons.

C the hydrogen gives the fluorine an electron.

D the hydrogen gives fluorine a proton.

14.

What do the nuclei in hydrogen molecules contain?

A electrons and neutrons

B electrons and protons

C neutrons only

D protons only

15.

Which atom has two more electrons than an atom of a noble gas?

A aluminium

B bromine

C calcium

D rubidium

16.

Statements 1, 2 and 3 are about diamond and graphite.

1 They are different solid forms of the same element.

2 They each conduct electricity.

3 They have atoms that form four equally strong bonds.

Which statements are correct?

A 1 only **B** 3 only **C** 1 and 3 **D** 2 and 3

17.

An element S has the proton number 18. The next element in the Periodic Table is an element T.

Which statement is correct?

A Element T has one more electron in its outer shell than element S.

B Element T has one more electron shell than element S.

C Element T is in the same group of the Periodic Table as element S.

D Element T is in the same period of the Periodic Table as element S.

18.

Which atom has twice as many neutrons as protons?

A $^{1}_{1}H$ **B** $^{2}_{1}H$ **C** $^{3}_{1}H$ **D** $^{4}_{2}He$

19.

Which change to an atom occurs when it forms a positive ion?

A It gains electrons.

B It gains protons.

C It loses electrons.

D It loses protons.

20.

Which numbers are added together to give the nucleon number of an ion?

A number of electrons + number of neutrons

B number of electrons + number of protons

C number of electrons + number of protons + number of neutrons

D number of protons + number of neutrons

21.

The electronic configuration of an ion is 2.8.8.

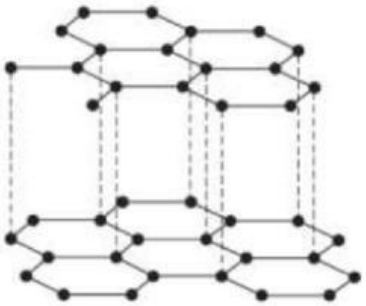
What could this ion be?

	S^{2-}	Ca^{2+}
A	✓	✓
B	✓	✗
C	✗	✓
D	✗	✗

22.

The diagrams show the structures of two forms, P and Q, of a solid element.

P



Q

What are suitable uses of P and Q, based on their structures?

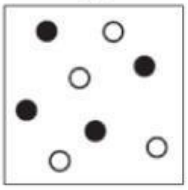
	use of solid P	use of solid Q
A	drilling	drilling
B	drilling	lubricating
C	lubricating	drilling
D	lubricating	lubricating

23. ?

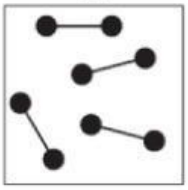
Two elements represented by ○ and ● can form a compound.

Which diagram shows molecules of the compound?

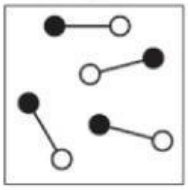
A



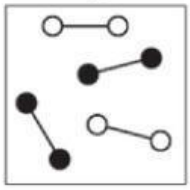
B



C



D



24.

When sodium chloride is formed from its elements, each chlorine atom .....1..... one .....2.....

Which words correctly complete gaps 1 and 2?

	1	2
A	gains	electron
B	gains	proton
C	loses	electron
D	loses	proton