The Periodic Table

Total Marks : 18

Q1.

Answer the question with a cross in the box you think is correct ☒. If you change your mind about an answer, put a line through the box ☒ and then mark your new answer with a cross ☒.

Calcium has an atomic number of 20.
A calcium atom has a mass number of 40.

(i) Which row of the table shows the number of protons and number of neutrons in this atom of calcium?

(1)

	number of protons	number of neutrons
☐ **A**	20	20
☐ **B**	40	20
☐ **C**	20	60
☐ **D**	60	20

(ii) Figure 8 shows the arrangement of electrons in an atom of calcium.

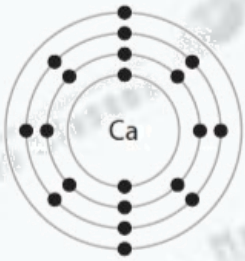

Figure 8

Explain, using the information in Figure 8, in which period of the periodic table calcium can be found.

(2)

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(Total for question = 3 marks)

Q2.

Answer the question with a cross in the box you think is correct ☒. If you change your mind about an answer, put a line through the box ☒ and then mark your new answer with a cross ☒.

Chlorine has an atomic number of 17.

Figure 3 shows the arrangement of electrons in an atom of chlorine.

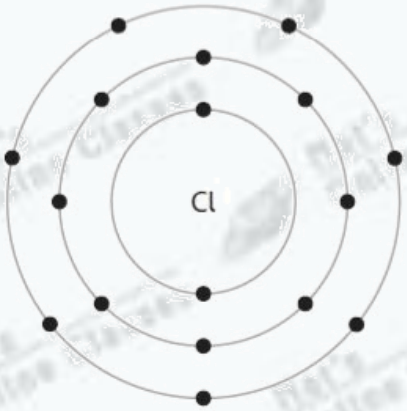

Figure 3

(i) What is the electronic configuration of this atom?

(1)

- ☐ **A** 10.7
- ☐ **B** 17
- ☐ **C** 2.8.7
- ☐ **D** 7.8.2

(ii) Explain, using Figure 3, why chlorine belongs to group 7 of the periodic table.

(2)

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(Total for question = 3 marks)

Q3.

Explain how the electronic configuration of an atom of potassium is related to its position in the periodic table.

(2)

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(Total for question = 2 marks)

Q4.

Potassium reacts with oxygen to form potassium oxide.

(i) Describe the test to show that a gas is oxygen.

(2)

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.....

.....

(ii) Potassium oxide is ionic.

Write the electronic configurations for the ions in potassium oxide, K_2O.

(2)

potassium ion: .....

oxide ion: .....

(Total for question = 4 marks)

Q5.

Answer the question with a cross in the box you think is correct ☒. If you change your mind about an answer, put a line through the box ☒ and then mark your new answer with a cross ☒.

An atom of potassium has atomic number 19 and mass number 39.

(i) Give the electronic configuration of this potassium atom.

(1)

.....

(ii) This potassium atom forms the ion K^+.

Which row shows the number of protons and the number of neutrons in this potassium ion, K^+?

(1)

	number of protons	number of neutrons
☐ **A**	19	19
☐ **B**	19	20
☐ **C**	20	19
☐ **D**	20	20

(Total for question = 2 marks)

Q6.

A chlorine atom contains 17 electrons, 18 neutrons and 17 protons.

(i) State the mass number of this chlorine atom.

(1)

.....

(ii) Give the electronic configuration of this chlorine atom.

(1)

.....

(Total for question = 2 marks)

Q7.

A carbon atom contains 6 electrons, 7 neutrons and 6 protons.

(i) State the mass number of this carbon atom.

(1)

.....

(ii) Give the electronic configuration of this carbon atom.

(1)

.....

(Total for question = 2 marks)