



A-Level Chemistry

Periodicity (Multiple Choice)

Question Paper

Time available: 23 minutes

Marks available: 19 marks

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1.

Which element is classified as a d block element?

A Antimony

☐

B Molybdenum

☐

C Strontium

☐

D Uranium

☐

(Total 1 mark)

2.

Which element in Period 3 has the highest melting point?

A Aluminium

☐

B Silicon

☐

C Sodium

☐

D Sulfur

☐

(Total 1 mark)

3.

Which ion has the largest radius?

A F^-

☐

B Mg^{2+}

☐

C Na^+

☐

D O^{2-}

☐

(Total 1 mark)

4.

Which element has a first ionisation energy lower than that of sulfur?

A Chlorine

☐

B Oxygen

☐

C Phosphorus

☐

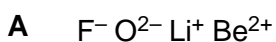
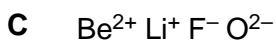
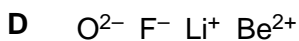
D Selenium

☐

(Total 1 mark)

5.

Which represents the correct order of increasing radius of the ions?

☐☐☐☐

(Total 1 mark)

6.

Which of these elements has the highest melting point?

A Argon

☐

B Chlorine

☐

C Silicon

☐

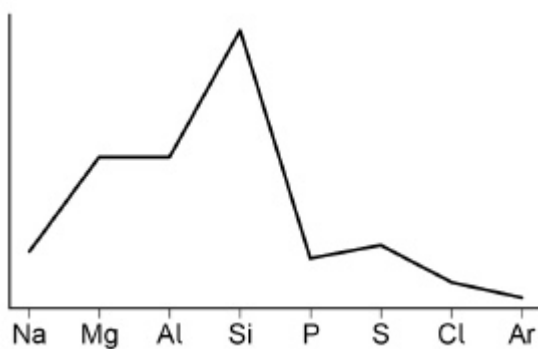
D Sulfur

☐

(Total 1 mark)

7.

The diagram shows how a property of Period 3 elements varies across the period.



What is the property?

A Atomic radius

☐

B Electronegativity

☐

C First ionisation energy

☐

D Melting point

☐

(Total 1 mark)

8.

Which element has the highest first ionisation energy?

A Aluminium

☐

B Phosphorus

☐

C Silicon

☐

D Sulfur

☐

(Total 1 mark)

9.

Which of these Period 3 elements has the highest melting point?

A Aluminium

☐

B Phosphorus

☐

C Sodium

☐

D Sulfur

☐

(Total 1 mark)

10.

Which is the correct order of melting points of these Period 3 elements?

A phosphorus > sulfur > chlorine > argon

☐

B argon > chlorine > phosphorus > sulfur

☐

C sulfur > phosphorus > chlorine > argon

☐

D chlorine > phosphorus > sulfur > argon

☐

(Total 1 mark)

11.

Which is the correct classification for the element yttrium (Y)?

A s block

☐

B p block

☐

C d block

☐

D f block

☐

(Total 1 mark)

12.

Which of the following is a correct statement about the trend in atomic radius across Period 3 of the Periodic Table?

A radius increases because the atoms have more electrons

☐

B radius decreases because nuclear charge increases

☐

C radius increases because shielding (screening) increases

☐

D radius decreases because shielding (screening) decreases

☐

(Total 1 mark)

13.

Which element is in the f-block of the Periodic Table?

A Palladium

☐

B Phosphorus

☐

C Platinum

☐

D Plutonium

☐

(Total 1 mark)

14.

Which elements are shown in increasing order of the stated property?

A Atomic radius: phosphorus, sulfur, chlorine.

☐

B First ionisation energy: sodium, magnesium, aluminium.

☐

C Electronegativity: sulfur, phosphorus, silicon.

☐

D Melting point: argon, chlorine, sulfur.

☐

(Total 1 mark)

15.

Which of these elements has the highest second ionisation energy?

A Na

☐

B Mg

☐

C Ne

☐

D Ar

☐

(Total 1 mark)

16.

Which element is in the d-block of the Periodic Table?

A Selenium

☐

B Antimony

☐

C Tantalum

☐

D Lead

☐

(Total 1 mark)

17.

Which one of the following statements is correct?

A The first ionisation energies of the elements in Period 3 show a general decrease from sodium to chlorine.

B The electronegativities of Group 2 elements decrease from magnesium to barium.

C The strength of the intermolecular forces increases from hydrogen fluoride to hydrogen chloride.

D The ability of a halide ion to act as a reducing agent decreases from fluoride to iodide.

(Total 1 mark)

18.

Which block in the Periodic Table contains the element samarium (Sm)?

A d block

☐

B f block

☐

C p block

☐

D s block

☐

(Total 1 mark)

19.

Which statement is correct about the Group 1 elements?

A The Cs^+ ion has a more negative enthalpy of hydration than the Rb^+ ion.

☐

B The enthalpy of atomisation for potassium is greater than the enthalpy of atomisation for sodium.

☐

C The melting point of potassium is higher than the melting point of sodium.

☐

D The second ionisation energy of rubidium is lower than the second ionisation energy of lithium.

☐

(Total 1 mark)