Unit 1: Atomic structure

Subunit 1.3: Electrons, energy levels and atomic orbitals

Topical Question No: 1

1 Which ion has the same electronic configuration as Cl^-?

A F^- **B** P^+ **C** Sc^{3+} **D** Si^{4+}

Topical Question No: 2

2 The electronic configuration of the two outermost shells of an atom is $3s^2 3p^6 3d^5 4s^2$.

What is this atom?

A manganese

B phosphorus

C strontium

D vanadium

Topical Question No: 3

3 Which statement about a 3p orbital is correct?

A It can hold a maximum of 6 electrons.

B It has the highest energy of the orbitals with principal quantum number 3.

C It is at a higher energy level than a 3s orbital but has the same shape.

D It is occupied by one electron in an isolated phosphorus atom.

Topical Question No: 4

32 In which pairs do both species have the same number of unpaired electrons in p orbitals?

1 O and Cl^+

2 F^+ and Ga^-

3 N and Kr^{3+}

Topical Question No: 5

32 *Use of the Data Booklet is relevant to this question.*

In which pairs do both species have the same number of unpaired p electrons?

1 O and Cl^+

2 F^+ and Ga^-

3 P and Ne^+

31 *Use of the Data Booklet is relevant to this question.*

In which pairs do both species have the same number of unpaired p electrons?

1 Al^{2-} and O^{+}

2 N and Cl^{2+}

3 C and Cl^{+}

Answer Key

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