

SMART EXAM RESOURCES
9701 CAMBRIDGE AS CHEMISTRY
TOPIC QUESTIONS AND MARK SCHEMES
TOPIC :ATOMIC STRUCTURE
SUB-TOPIC: ELECTRONIC CONFIGURATION
SET-5-QP-MS

1 The elements phosphorus, sulfur and chlorine are in Period 3 of the Periodic Table.

Table 1.1 shows some properties of the elements P to Cl.

The first ionisation energy of S is **not** shown.

Table 1.1

property	P	S	Cl
number of electrons in 3p subshell			
total number of unpaired electrons			
first ionisation energy /kJ mol ⁻¹	1060		1260
formula of most common anion	P ³⁻	S ²⁻	Cl ⁻

MARK SCHEME:

2

total # 3p e ⁻	3	4	5	1
total # unpaired e ⁻	3	2	1	1

2 Table 1.1 shows some properties of the elements Si to S.

The first ionisation energy of P is **not** shown.

Table 1.1

property	Si	P	S
total number of electrons in s subshells			
total number of electrons in p subshells			
first ionisation energy/kJ mol ⁻¹	786		1000
formula of most common chloride	SiCl ₄	PCl ₅	SCl ₂

- (i) Complete Table 1.1 to show the total number of s and p electrons in an atom of Si, P and S.

[2]

MARK SCHEME:

4

total e ⁻ in s subshell	6	6	6	1
total e ⁻ in p subshell	8	9	10	1