9. The Periodic Table: Chemical Periodicity

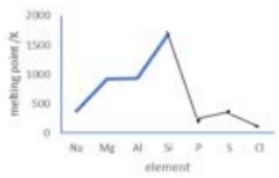
9.1 Periodicity of physical properties

Paper 2

Marking Scheme

Q1.

(d)(i)	large amount of energy required to break bonds in giant covalent structure	1

(d)(ii)	 **M1** all 3 melting points lower than Mg **M2** show melting point Cl < P < S	2

Q2.

(a)(i)	element	C (graphite)	Sn	3
	state and appearance	grey shiny solid	silvery solid	
	electrical conductivity	• good/ conductor	good	
	type of bonding	• covalent	metallic	
	type of structure	giant	• giant	

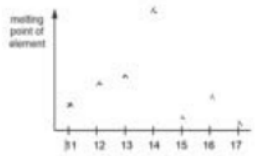
Q3.

(d)	element	nitrogen	phosphorus	2
	state and appearance	colourless gas	white solid	
	electrical conductivity	• poor	poor	
	type of bonding	• covalent	• covalent	
	type of structure	simple	• simple	

Q4.

(a)(i)	decreases (from Si to S)	1
(a)(ii)	**M1** Si giant covalent **AND** S is simple molecular **OR** Si giant covalent **AND** S has IMFs	1
	M2 Si involves breaking covalent bonds **AND** S involves breaking IMFs	1
	M3 more energy needed to break covalent bonds than IMFs **OR** covalent bonds are strong AND IMFs are weak	1

Q5.

(b)		**2**