Practice Question Set For A-Level
Subject : Chemistry
Paper-1 Topic: Inorganic 1

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Name of the Student:_____
Max. Marks : 17 Marks **Time : 17 Minutes**

Mark Schemes

Q1.
B

[1]

Q2.
D

[1]

Q3.
D

[1]

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Q4.

(a) The number of protons increases (across the period) / nuclear charge increases

1

Therefore, the attraction between the nucleus and electrons increases

Can only score M2 if M1 is correct

1

(b) S_8 molecules are bigger than P_4 molecules

Allow sulfur molecules have bigger surface area and sulfur molecules have bigger M_r

1

Therefore, van der Waals / dispersion / London forces between molecules are stronger in sulfur

1

(c) Sodium oxide contains O^{2-} ions

1

These O^{2-} ions react with water forming OH^- ions

$O^{2-} + H_2O \longrightarrow 2OH^-$ *scores M1 and M2*

1

(d) $P_4O_{10} + 12OH^- \longrightarrow 4PO_4^{3-} + 6H_2O$

1

[7]

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Q5.

(a) $Mg^{(2+)}$ or Magnesium

Na^+ CE=0

1

Because Mg^{2+} has more protons
AND
With the same shielding/screening/electron arrangement/number of electrons (or isoelectronic)

Allow larger/stronger nuclear charge

Ignore atomic radius

1

(b) $Na(g) \rightarrow Na^+(g) + e^-$

1 for correct species and gas phase

Allow e without charge

Allow $Na(g) - e^- \rightarrow Na^+(g)$

$Na(g) + e^- \rightarrow Na^+(g) + 2e^-$

1

(c) Mg between 600-800

1

S between 800-1040

If S not lower than P on graph then M1 only

If no plots on graph must state S below P to access M3 & M4

1

e^- paired in (3)p orbital in S (owtte)

Allow (3)p subshell/sublevel provided pair mentioned

1

Paired e^- repel (so less energy needed to remove)

1

[7]

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