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

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Exam Preparation and Free Resources

Name of the Student:_____
Max. Marks : 24 Marks **Time : 24 Minutes**

Mark Schemes

Q1.

(a) General increase

If not increase then CE

1

Greater nuclear charge / more protons

1

Same shielding / electrons added to same shell

Allow similar

1

Stronger attraction (from nucleus) for outer electron(s)

Allow electron in outer shell

1

(b) Aluminium / Al (lower than Mg)

CE if not Al or S

1

(Outer) electron in (3)p orbital / sub-shell (level)

If 2p or 4p orbital lose M2 and M3

1

(3p) higher in energy

Allow more shielded or weaker nuclear attraction

M3 is dependent on M2

1

or
Sulfur / S (lower than P)
(Outer) electrons in (3)p orbital begin to pair
Repel

If 2p or 4p orbital lose M2 and M3

Allow 2 electrons in (3)p

M3 is dependent on M2

(c) Sulfur / S

CE if not S

1

Large jump after 6^{th} or between 6^{th} and 7^{th}

Do not allow M2 if atom/ion is removed

1

(d) Silicon

CE if not Si

1

Giant covalent structure / macromolecule

1

Covalent (bonds)

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Giant covalent scores M2 and M3

1

Many / strong (covalent bonds) or
(covalent bonds) need lots of energy to break

CE for M2-M4 if molecules / metallic / ionic / IMFs mentioned

1

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Q2.

(a) Silicon / Si

If not silicon then CE = 0 / 3

1

covalent (bonds)

M3 dependent on correct M2

1

Strong or many of the (covalent) bonds need to be broken / needs a lot of energy to break the (covalent) bonds

Ignore hard to break

1

(b) Argon / Ar

If not argon then CE = 0 / 3. But if Kr chosen, lose M1 and allow M2+M3

1

Large(st) number of protons / large(st) nuclear charge

Ignore smallest atomic radius

1

Same amount of shielding / same number of shells / same number of energy levels

Allow similar shielding

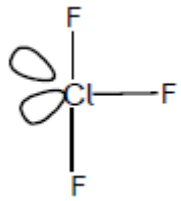
1

(c) Chlorine / Cl

*Not Cl_2, Not C**L**, Not Cl^2*

1

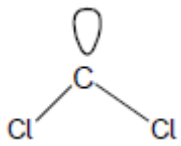
(d) (i)



Or any structure with 3 bonds and 2 lone pairs

Ignore any angles shown

1



Or a structure with 2 bonds and 1 lone pair

1

(ii) Bent / v shape

Ignore non-linear, angular and triangular

Apply list principle

1

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(iii) $\frac{1}{2}Cl_2 + \frac{3}{2}F_2 \rightarrow ClF_3$

No multiples

Ignore state symbols

1

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