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

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Name of the Student:_____
Max. Marks : 19 Marks **Time : 19 Minutes**

Mark Schemes

Q1.

(a) (i) d (block) **OR** D (block)

Ignore transition metals / series.

Do not allow any numbers in the answer.

1

(ii) Contains positive (metal) ions or protons or nuclei and <u>delocalised / mobile / free / sea of</u> electrons

Ignore atoms.

1

<u>Strong attraction</u> between them or <u>strong metallic</u> bonds

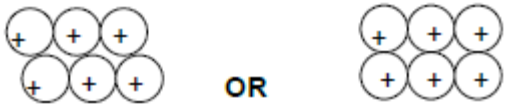
Allow 'needs a lot of energy to break / overcome' instead of 'strong'.

If strong attraction between incorrect particles, then CE = 0 / 2.

If molecules / intermolecular forces / covalent bonding / ionic bonding mentioned then CE=0.

1

(iii)



M1 is for regular arrangement of atoms / ions (min 6 metal particles).

M2 for + sign in each metal atom / ion.

Allow 2^+ sign.

2

(iv) <u>Layers / planes / sheets of atoms or ions</u> can slide over one another

QoL.

1

(b) (i) $1s^2\ 2s^2\ 2p^6\ 3s^2\ 3p^6\ 3d^8\ (4s^0)$

Only.

1

(ii) $NiCl_2.6H_2O$ + **6** $SOCl_2$ ⟶ $NiCl_2$ + **6** SO_2 + **12** HCl

Allow multiples.

1

NaOH / NH_3 / $CaCO_3$ / CaO

Allow any name or formula of alkali or base.

Allow water.

1

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[9]

Q2.

(a) Carbon / C

If M1 incorrect, CE = 0 / 3

1

Fewest protons / smallest nuclear charge / least attraction between protons (in the nucleus) and electrons / weakest nuclear attraction to electrons

Allow comparative answers.

Allow converse answers for M2

1

Similar shielding

Allow same shielding.

1

(b) Increase

1

Oxygen / O

If not oxygen, then cannot score M2, M3 and M4

1

Paired electrons in a (2)p orbital

If paired electrons in incorrect p orbital, lose M3 but can award M4

1

(Paired electrons in a p orbital) repel

1

(c) $C(g) \rightarrow C^{+}(g) + e^{(-)}$

OR

$C(g) + e^{(-)} \rightarrow C^{+}(g) + 2e^{(-)}$

OR

$C(g) - e^{(-)} \rightarrow C^{+}(g)$

Ignore state symbols for electron.

1

(d) (More energy to) remove an electron from a (more) positive ion / cation

Allow electron closer to the nucleus in the positive ion.

1

(e) Lithium / lithium / Li

If formula given, upper and lower case letters must be as shown.

1

[10]

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