Name of the Student:_____
Max. Marks : 15 Marks **Time : 15 Minutes**

Mark Schemes

Q1.

M1 and M2 (either order)

Any two from

- purple <u>vapour / gas</u>
- (white solid goes to) black or black / grey or black / purple <u>solid</u>
- bad <u>egg smell</u> or words to this effect

Ignore misty white fumes
Ignore yellow solid
Ignore purple solid
Ignore "goes (dark) brown"

M3

*Or multiples for possible equation in **M3***

The <u>iodide ion(s) / they lose (an) electron(s)</u>

OR

$2I^- \longrightarrow I_2 + 2e^-$

M4

Accept "changes by − 8"

Oxidation state of S changes from **<u>+6 to −2</u>** or **<u>changes by 8</u>**

M5

$H_2SO_4 + \mathbf{8}H^+ + \mathbf{8}e^- \longrightarrow H_2S + \mathbf{4}H_2O$

OR

$SO_4^{2-} + \mathbf{10}H^+ + \mathbf{8}e^- \longrightarrow H_2S + \mathbf{4}H_2O$

[5]

Downloaded from www.merit-minds.com

Q2.

(a) M1 Cl_2 + **2**Br^- $\longrightarrow$ **2**Cl^- + Br_2

Accept a correct equation using ½ Cl_2 but no other multiples

M2 solution goes <u>orange / yellow</u> (from colourless)

Ignore reference to brown colour

Penalise incorrect observations eg fumes, precipitates

2

(b) M1 Cl_2 + 2NaOH $\longrightarrow$ NaClO + NaCl + H_2O

(NaOCl)

Or a correct ionic equation

Ignore reference to "swimming pools" and to "disinfectant"

M2 bleach or kills bacteria / bacteriacide / micro-organisms / microbes

M3 <u>sodium chlorate(I)</u> ONLY

3

(c) M Cl_2 + H_2O $\rightleftharpoons$ HClO + HCl

(HOCl)

*Equilibrium symbol **<u>required</u>** in **M1***

Accept ionic RHS

M2

The (health) benefit outweighs the risk or wtte

OR

a clear statement that once it has done its job, little of it remains

OR

used in (very) dilute concentrations / small amounts / low doses

2

(d) M1 Silver nitrate OR $AgNO_3$ (with or without nitric acid)

*For **M1***

If only the formula is written then it must be correct

If both the formula and the name are written then ignore incorrect attempt at the formula, but penalise an incorrect name

M2 (depends on M1)

white precipitate / white solid

*If the reagent is incomplete eg Ag^+ ions, penalise **M1** and mark on*

M3 Ag^+ + Cl^- $\longrightarrow$ AgCl

*Penalise both **M1** and **M2** for alkaline $AgNO_3$ **OR** for the use of HCl to acidify the silver nitrate **OR** for Tollens' reagent*

3

[10]

Downloaded from www.merit-minds.com