18.0.0 ACIDS, BASES AND SALTS ANS

For Examiners use only.

Question	Maximum Score	Candidates Score
1 – 14	46	

*This paper consists of **[Please insert number of pages]** Printed pages.*
Candidates should check the question paper to ensure that all the
Papers are printed as indicated and no questions are missing

1.

(i) Can act as both an acid and a base/reacts with both acids and bases (to form salts) / It has both acidic and basic properties **(1)** 1

(ii) AL2O3 + 6H+ ® 2AL3+ + 3H2O **(1)**
AL2O3 + 2OH- + 3H2O ® 2[AL(OH)4]- /
AL2O3 + 2OH- ® 2AlO2- + H2O **(1)** 2

2.

a) D ü

b) A strong acid is one which ionizes completely in water to produce higher concentration of hydrogen ions (1)ü while a concentrated acid is one which contains higher number of acid molecules per given volume of water ü

3.

Hydrochloric acid solution is completely dissociated giving a high concentration of H^+ (1mk)

while ethanoic acid is only partially

dissociated being a weak acid. (1mk)

4.

(a) $[Cu(H_2O)_6]^{2+}(aq) + 2OH^-(aq) \rightarrow Cu(OH)_2(s) + 6H_2O(l)$ [1m]

(b) $Cu(OH)_2(s) + 4NH_3(aq) + 2H_2O(l) \rightarrow$

$[Cu(NH_3)_4(H_2O)_2]^{2+}(aq) + 2OH^-(aq)$ [1m]

[Total 2m]

5.

(a) tripod (1) accept: stand spatula (1) not: spoon [2]
(b) fizz/bubbles/effervescence stops (1)
solid/iron/powder visible / no more iron dissolves/reacts (1) [2]
(c) evaporation of water/steam (1) solid/residue/crystals formed (1)
colour change turns brown/darker green (1)
effect of heat on solid solid breaks down (1) max 3 [3]

[Total: 7]

6.

Iron(III) oxide is a basic oxide. What type of oxide is:

(i) amphoteric (1)

(1)

(ii) acidic (1)

(1)
(Total 2 marks)

7.

i) Sublimationa1
ii) Oxidationa1

iii) Dehydrationa1

8.

- It ionizes in water ü(1mk)
- It doesn't ionize in CCl_4ü (1mk)

9.

(a) Points plotted correctly (3), –1 for each incorrect
smooth curve (1) not a straight line [4]
(b) 47}1 or reading from graph (1) curve extrapolated on grid (1) [2]
(c) solid/crystals form owtte (1) 20g (1) [2]
not solubility decreases

[Total: 8]

10.

H_2Oa ½
It accepts a proton to form H_3O^+ a ½

11.

(a) These are oxides that which combine with acids [1m]and with alkalis [1m] to form salts and water only.
(b) (i) $ZnO + 2HCl \rightarrow ZnCl_2 + H_2O$ [1m]
(ii)$ZnO + 2NaOH \rightarrow Na_2ZnO_2 + H_2O$ [1m]
(iii)water or carbon monoxide, or nitrous oxide [1m]

[Total 5m]

12.

a) $Mg^{2+}_{(aq)} + CO_3^{2-}{}_{(aq)} \rightarrow MgCO_{3(s)}$ a1
Or
$Ca^{2+}_{(aq)} + CO_3^{2-}{}_{(aq)} \rightarrow CaCO_{3(s)}$
Balance equation 1mk
Condition : state symbol are correct.
If not correct or missing penalize ½ mk
b) Provide calcium / mineral for formation of teeth and bones. a1

13.

a) **14.**
a) Water which does not readily form lather with soapP1
b) Ca^{2+}P½ and Mg^{2+} P½
c) $Na_2X_{(s)} + Ca^{2+}_{(aq)} \longrightarrow CaX_{(s)} + 2Na^+_{(aq)}$
or
$Na_2X_{(s)} + Mg^{2+}_{(aq)} \longrightarrow MgX_{(s)} + 2Na^+_{(aq)}$ *(Any 1 x 1mk)*