## Identification of Ions and Gases

Mark Scheme 6

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Time Allowed: 51 minutes  
Score: /42  
Percentage: /100
1. (a) no/little water present/little water implied (1)
   (b) any value less than 7 (1)
   (c) chromatography (1) apply to paper (1) use of solvent (1)
       description of two yellow spots (1)
       paper in drink = max 2

2. (a) electrodes correctly labelled (1)
   (b) bubbles at positive/negative electrode (1)
       bulb lights up (1)
   (c) lighted splint (1)
       pops (1)

3. (b) (i) while (1)
       precipitate (1)
       dissolves (1)
   (ii) white (1)
       precipitate (1)
       insoluble (1)
   (c) acid gas/named/hydrated salt
   (d) not a sulphate (1)
       not a halide (1)
   (e) ammonia
   (f) nitrate (1)
       hydrated/water (1)
4  (a)  
(i)  White Precipitate
No change/white precipitate/insoluble in excess
(ii) No/thin precipitate/no reaction

(b)  Ammonia

(c)  Reference to limewater/test for carbon dioxide

(d)  Nitrate
Alkali/hydroxide/oxide

5  (a)  Anhydrous copper sulphate/cobalt chloride
Goes blue/pink in water, no change for ethanol

(b)  Add indicator/named indicator or CO$_3^{2-}$/Mg
Turns red/correct colour in acid, no change for sodium sulphate

(c)  Add silver nitrate
White precipitate with hydrochloric acid, no change with nitric acid

6  (a)  A measuring cylinder (1)
B flask (1)

(b)  boxes completed correctly, zinc and hydrochloric acid (1)

(c)  lighted splint (1)  pops (1)
second mark consequential i.e. glowing splint = 0