O Level Combined Chemistry Structured

Qualitative Analysis Test 1.0

Q1

Fig 7.1 shows the reaction scheme of some of the chemical substances.

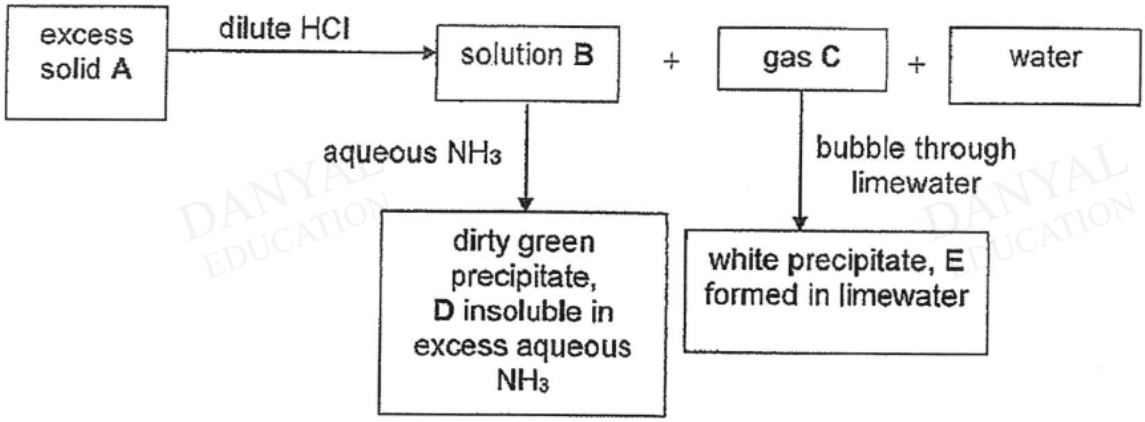


Fig 7.1

Name substance A, B, C, D and E.

(a) A .....

(b) B .....

(c) C .....

(d) D .....

(e) E ..... [5]

Q2

Figure 5.1 shows the reactions of a mixture containing two solids **S** and **X**.

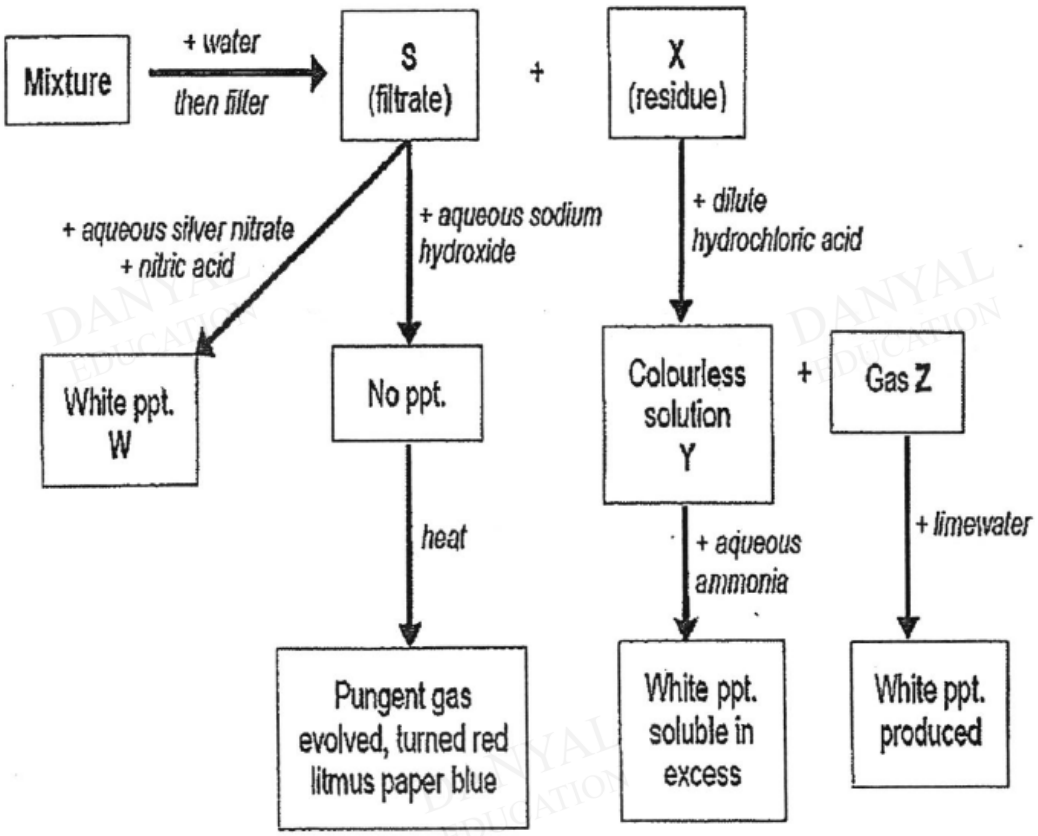


Figure 5.1

(a) Identify substances **S, X, W, Y and Z.**

S .....

X .....

W .....

Y .....

Z .....

[5]

(b) Write a balanced chemical equation for the reaction of **X** with dilute hydrochloric acid.

.....

[2]

Q3

When completed, Table 1.1 describes the synthesis of two gases and their corresponding laboratory tests. Complete the table by filling in the blank boxes.

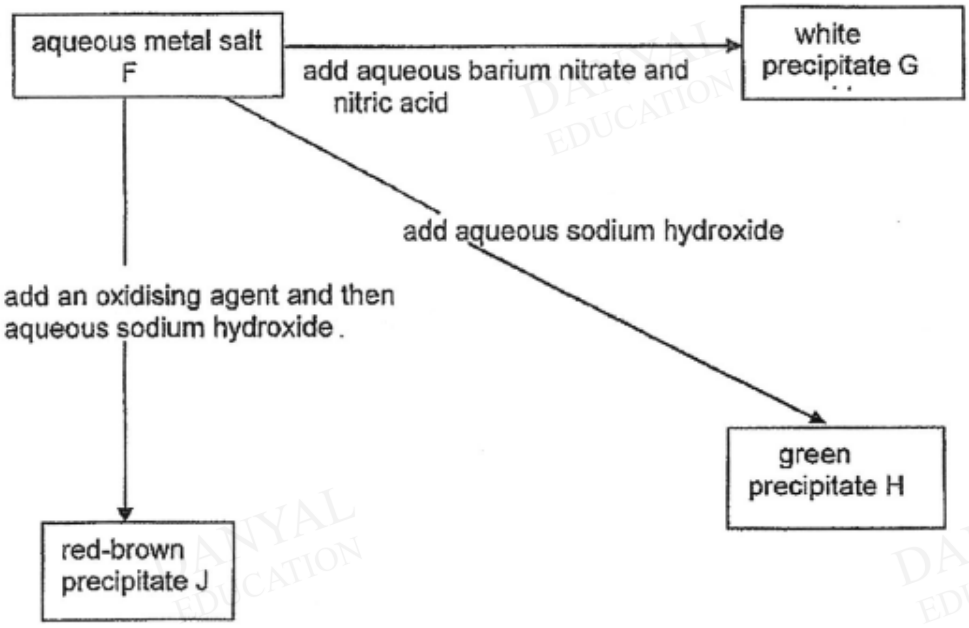
Reaction	gas produced	laboratory test	result of test
Decomposition of hydrogen peroxide	oxygen		
calcium + cold water		insert a lighted splint at the mouth of the test tube	

Table 1.1

[2]

Q4

The diagram below shows some reactions of an aqueous metal salt, F.



(c) Name

(i) white precipitate G: ..... [1]

(ii) green precipitate H: ..... [1]

(iii) red-brown precipitate J: ..... [1]

(d) Name and give the formula of the metal salt, F.

..... [2]

Q5

7 Fig. 7.1 shows some reactions of a lead(II) salt **W**.

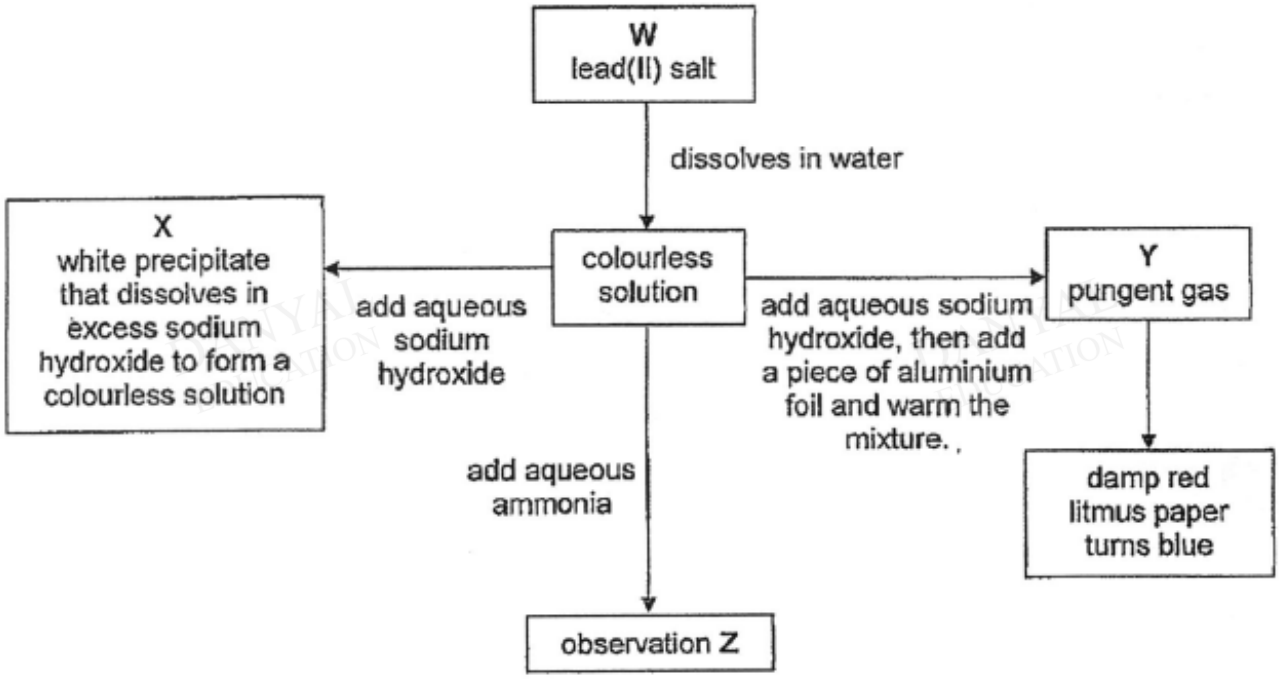


Fig. 7.1

(a) Suggest the identity of substances **W**, **X** and **Y**.

W:.....

X:.....

Y:.....

[3]

(b) State what observation **Z** would be.

.....

.....[1]

(c) Suggest a suitable method to prepare salt **W**. Name the two reagents needed to prepare the salt.

method:.....[1]

reagents:.....[1]

Answers

Qualitative Analysis Test 1.0

Q1

(a)	Iron (II) carbonate	[1]
(b)	Iron (II) chloride	[1]
(c)	carbon dioxide gas	[1]
(d)	Iron(II) hydroxide	[1]
(e)	calcium carbonate	[1]
	Note : ½ given if correct chemical formula written	

Q2

5a	S – ammonium chloride X – zinc carbonate W – silver chloride Y – zinc chloride Z – carbon dioxide
b	$ZnCO_3 + 2HCl \rightarrow ZnCl_2 + CO_2 + H_2O$

Q3

Reaction	gas produced	laboratory test	result of test
Decomposition of hydrogen peroxide	oxygen	**Insert a glowing splint near the gas**	**Glowing splint is rekindled/ relighted/ burst into flames**
calcium + cold water	**hydrogen**	insert a lighted splint at the mouth of the test tube	**Lighted splint is extinguished with a pop sound**

4 entries – 2m

2 entries – 1m

Q4

(c)	(i) barium sulfate	
	(ii) iron (II) hydroxide	
	(iii) iron (III) hydroxide	
(d)	Iron (II) sulfate, $FeSO_4$	2

Q5

(a)	**W**: lead(II) nitrate	[1]
	X: lead(II) hydroxide	[1]
	Y: ammonia gas	[1]
(b)	**White precipitate**, **insoluble** in excess sodium hydroxide.	[1]
(c)	Method: **Acid reaction with metal, base, carbonate**	[1]
	Reagents: nitric acid / lead(II) carbonate / lead(II) oxide	[1]