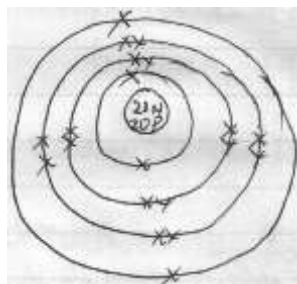


**FORM 3 CHEMISTRY PAPER 1  
END OF TERM 1 MARKING SCHEME**

1. (i) Y – 2.8.6 (½ mk)

Z – 2.8.8.2 (½ mk)

(ii)



1 mk for correct number of energy levels and correct distribution of electrons.

2. (i) C (1 mk)

(ii) Al (½ mk) it 15, a weak acid hence the PH is 5 (½ mk)

(iii) E (1 mk)

3. (i) – A brown solid is formed in the combustion tube. (1 mk)

- A white ppt is formed in the lime water. (1 mk)



4. (a) No of protons –  $54 - 3 = 23$  (1 mk)

(b) R.A.M of Y =

(1 mk)

$$3.24 + 51.52 + 1.14 = 55.9 \text{ (1 mk)}$$

5. (a) Lead (ii) carbonate reacts with sulphuric (vi) acid forming insoluble lead (ii) sulphate. (1 mk) which hinders further reaction. (1 mk)

(b) Double decomposition (1 mk)

6. (i) – A white ash is formed. (1 mk)

- A black solid. (1 mk)



7. (a) A, B, C

Increasing reactivity (1 mk)

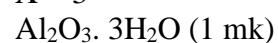
(b) C (1 mk)

(c) Silver/Ag (1 mk)

8.

	Al <sub>2</sub> O <sub>3</sub>	H <sub>2</sub> O
(i) Mass	20.6	10.6 (½ mk)
(ii) R.F.M	102	18
(iii) No of moles	0.2020	(½ mk) 0.5889 ½ mk
	1	2.915 (½ mk)

$$X = 3$$



9. The water turned blue (1 mk) since the particles diffused (1 mk) throughout the water.

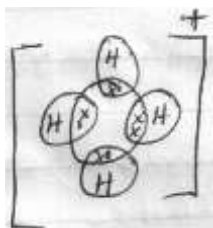
10. (i)  $x + -8 = -1$

$$X = +7 \text{ (1 mk)}$$

(ii)  $x + -2 \times 2 = 0$

$$X = +4 \text{ (1 mk)}$$

11.



12. 2.8.5

(i) Group – V (1 mk)

(ii) Period – 3 (1 mk)

13. (i) Delocalised electrons (1 mk)

(ii) Mobile ions (1 mk)

	C	H	O
(i) Composition	40	6.67	53.33 ½ mk
(ii) R.A.M	12	1	16
(iii) No of moles	3.33	6.67	½ mk 3.33

$$\text{E.F} = \text{CH}_2\text{O} \text{ ½ mk}$$

$$n = \frac{180}{30} = 6 \text{ ½ mk}$$

$$\text{M.F} = (\text{CH}_2\text{O})_6 \text{ ½ mk}$$

$$= \text{C}_6\text{H}_{12}\text{O}_6 \text{ ½ mk}$$

	1	2.0	1
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15. The blue litmus paper was bleached (1 mk) due to presence of hypochlorous acid. (1 mk) which is formed after chlorine reacts with water.

16. (a) Reduction (1 mk)

(b) Hydrogen/Ammonia (1 mk)

17. (i) Hygroscopy (1 mk)

(ii) Deliquescency. (1 mk)

(iii) Efflorescence. (1 mk)

18.

(1 mk)

200 x

THCl =

= (1 mk)

= 182.1645 (1 mk)

19. (a) A grey solid is formed (1 mk)

(b) (i)  $\text{Pb}^{2+}_{(aq)} + 2\text{e}^- \rightarrow \text{Pb}_{(s)}$  (1 mk)

(ii)  $2\text{Br}^- \rightarrow \text{Br}_{2(g)} + 2\text{e}^-$  (1 mk)

20. (a) To prevent zinc from reacting with air in the test tube 11 ensure its steam not air that reacts with zinc. (1 mk)

(b) Zinc would react with air not steam. (1 mk)

(c) Its less dense than air. (1 mk)

21.

$P_1 - 110\text{Kpa}$

$P_2 - 125\text{Kpa}$

$V_1 - 120\text{cm}^3$

$V_2 - 105\text{cm}^3$

$T_1 - (40 + 273)\text{k}$

?

(1 mk)

(1 mk)

(1 mk)

22. (i) Fractional distillation. (1 mk)

(ii) Put the mixture in a separating funnel (1 mk) open the tap, the denser liquid flows out leaving the less dense in the funnel. (1 mk)

23. Group 5 ( $\frac{1}{2}$  mk)  
Period – 3 ( $\frac{1}{2}$  mk)

(b) (i) Noble gases (1 mk)  
(ii) Its inert (1 mk)

24. (a) Bee hive shelf (1 mk)

(b) Sodium peroxide (1 mk)

(c)  $2\text{Na}_2\text{O}_{2(s)} + 2\text{H}_2\text{O}_{(l)} \rightarrow 4\text{NaOH}_{(aq)} + \text{O}_{2(g)}$  (1 mk)

25. (a) Halogens (1 mk)

(b) X ion (1 mk) X forms ions by gaining an electron. The extra electron causes repulsion making the atom bigger. (1 mk)

26. – it's light

- its resistant to corrosion

27. (a)  $\text{Co}_2$  forms a white ppt ( $\frac{1}{2}$  mk) with lime water while with sodium hydroxide no white ( $\frac{1}{2}$  mk) precipitate is formed.

(b)  $\text{Pb}^{2+}_{(aq)} + \text{SO}_4^{2-}_{(aq)} \rightarrow \text{PbSO}_4_{(s)}$  (1 mk)

28. X – diamond ( $\frac{1}{2}$  mk)

Y – Graphite ( $\frac{1}{2}$  mk)

29. (a) Oxygen (1 mk)

(b) Thermal decomposition (1 mk)

30. (a) –carbon (iv) oxide

- carbon (ii) oxide

(b)  $\text{Co}_2$  – in fire extinguishers

- Dry ice as a preservative

- in fizzy drinks

Co – As a reducing agent in extraction of metals.

- As a fuel eg in water gas.

Any one (1 mk)