

## Marking Scheme Chemistry Paper 1 FORM III

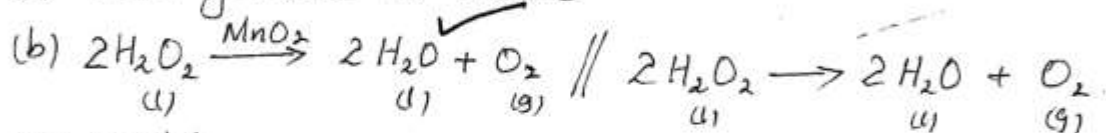
Q1 Hydrogen / Acetylene or Ethyne ✓

Q2 2, 8, 8, 2 ✓  
2, 8, 2 ✓

(b) The two valency electrons of calcium are further away from the nucleus, therefore not strongly held hence readily lost / donated. ✓

Q3. R.A.M =  $\frac{62.93 \times 69.09}{100} + \frac{64.93 \times 30.91}{100}$  ✓  
 $= \frac{4347.8337 + 2006.9863}{100}$  ✓  
 $= \frac{6354.82}{100}$  ✓  
 $= \underline{\underline{63.55}}$  ✓

Q4 (a) Manganese IV oxide ✓



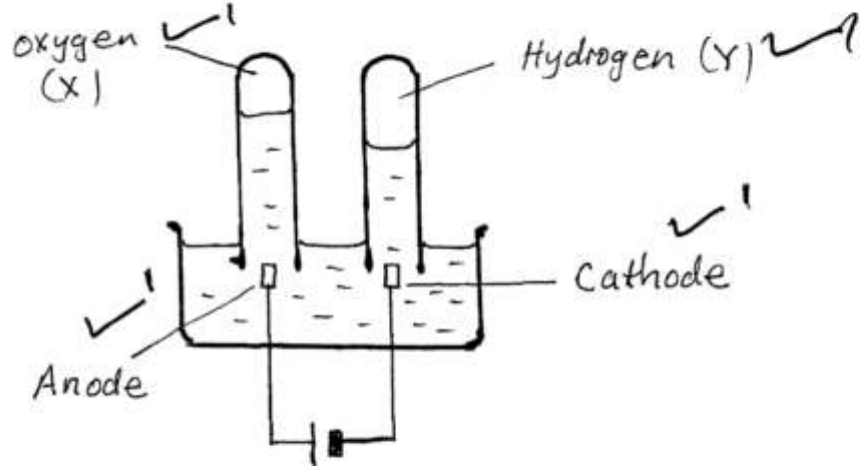
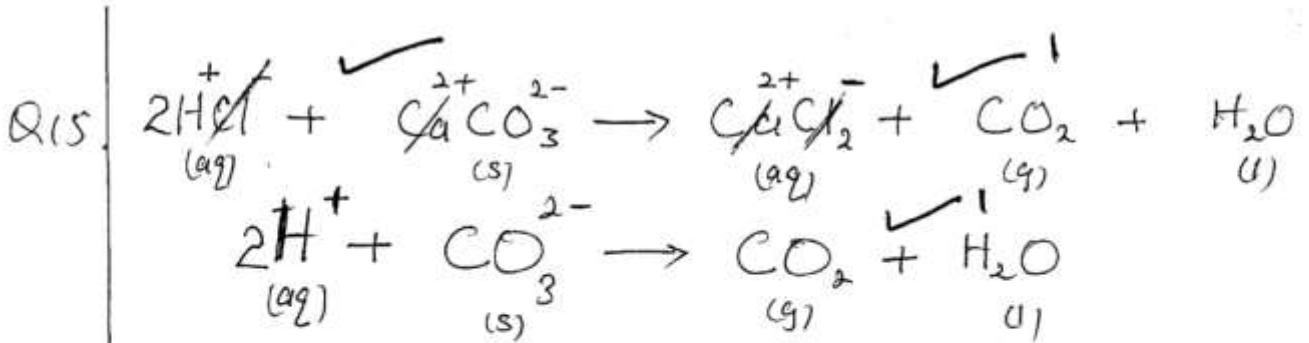
(c) - Welding  
 - Rocket fuel  
 - Hospital, ICU  
 - steel making  
 - Deep sea diving } any 2 ✓ (2)

Q5 (i) Expensive to produce ✓  
 (ii) Explosive ✓

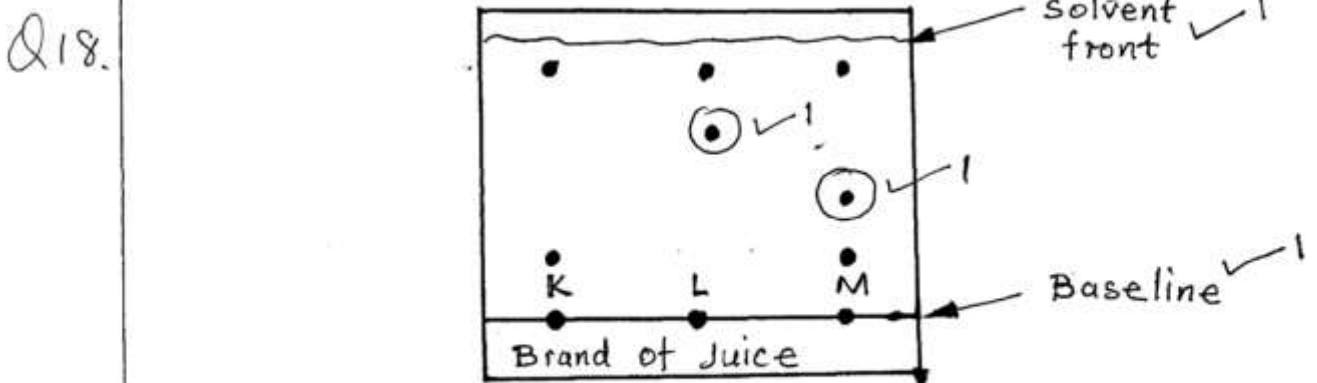






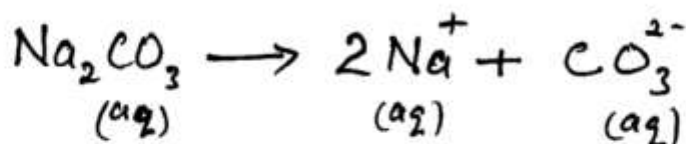


- Q17
- (a) Mass increase - Copper metal combines with oxygen forming copper oxide.
- (b) Mass reduction - Copper II nitrate is decomposed by heat forming copper oxide, nitrogen dioxide and oxygen gases - the gases escape.





Q19. Moles of  $\text{Na}_2\text{CO}_3 = \frac{25}{1000} \times 0.5$   
 $= 0.0125$  ✓ 1



Moles of  $\text{Na}^+ = 2 \times 0.0125$  ✓ 1  
 $= 0.025$

Number of  $\text{Na}^+ = 0.025 \times 6.023 \times 10^{23}$   
 $= 1.5058 \times 10^{22}$  ✓ 1

Q20 (a) Water molecules gain energy and move faster. ✓ 1

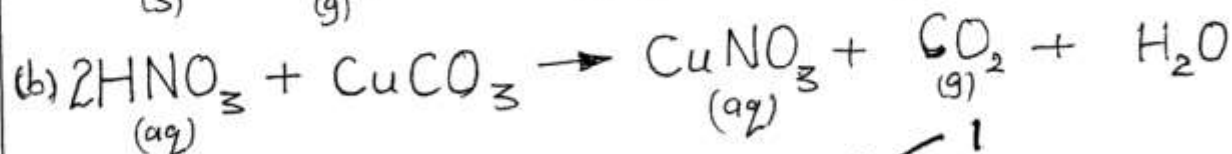
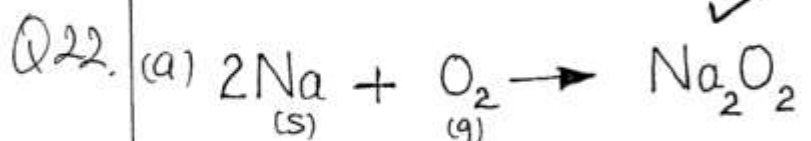
(b) XY ✓ 1

(c) Supplied energy is used to break bonds between water molecules in liquid state and become free molecules in gaseous state ✓ 1

Q21 (i)  $\text{KMnO}_4$  ✓ 1

(ii)  $\text{Al}_2\text{O}_3$  ✓ 1

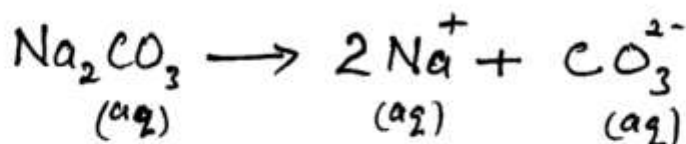
(iii)  $\text{FeCl}_3$  ✓ 1







Q19. Moles of  $\text{Na}_2\text{CO}_3 = \frac{25}{1000} \times 0.5$   
 $= 0.0125$  ✓ 1



Moles of  $\text{Na}^+ = 2 \times 0.0125$  ✓ 1  
 $= 0.025$

Number of  $\text{Na}^+ = 0.025 \times 6.023 \times 10^{23}$   
 $= 1.5058 \times 10^{22}$  ✓ 1

Q20 (a) Water molecules gain energy and move faster. ✓ 1

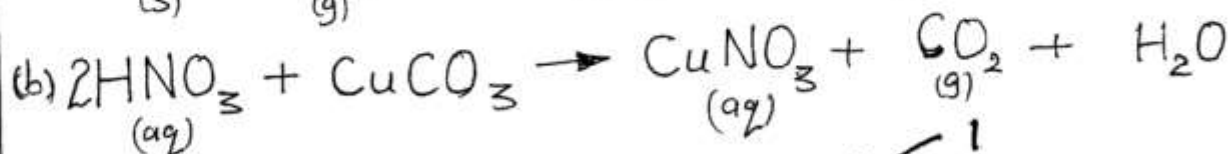
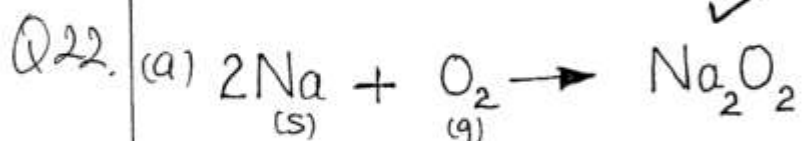
(b) XY ✓ 1

(c) Supplied energy is used to break bonds between water molecules in liquid state and become free molecules in gaseous state ✓ 1

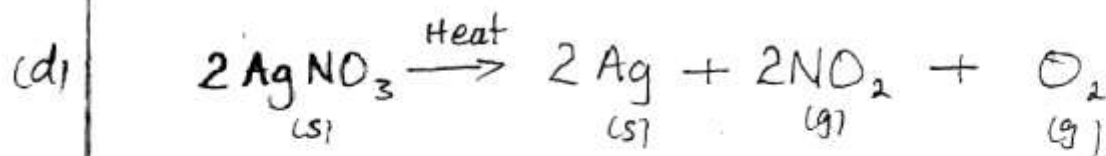
Q21 (i)  $\text{KMnO}_4$  ✓ 1

(ii)  $\text{Al}_2\text{O}_3$  ✓ 1

(iii)  $\text{FeCl}_3$  ✓ 1







- Q23
- (i) 2 ✓ 1
  - (ii) 9 ✓ 1
  - (iii) 13 ✓ 1
  - (iv) 5 ✓ 1

Q24 Heat the mixture in a fractional distillation apparatus maintaining the temperature at the boiling point of ethanol which is lower than that of water. Ethanol will distill over leaving water behind. ✓ (3)

- Q25
- (a) Hydrated Iron III oxide ✓ 1
  - (b) (i) Enable paint to stick properly on steel articles. ✓ 1/2
  - (ii) Assist the environment to get rid of scrap metal objects. ✓ 1/2

