

**233/3**  
**CHEMISTRY PAPER 3**  
**FORM 4**

**CONFIDENTIAL**

In addition to the equipment and fittings in the Chemistry laboratory, each candidate will require:

1. Solid R (5.0g of oxalic acid in a boiling tube. (Accurately weighed)
2. 100cm<sup>3</sup> solution Q (0.25M NaOH)
3. Thermometer (-10°C – 110°C)
4. One 50ml burette
5. Filter funnel
6. Pipette and pipette filler
7. One label
8. 250ml volumetric flask
9. 2 pieces 250ml conical flask
10. About 500ml of distilled water
11. Bunsen burner
12. 0.5 of solid S (maleic acid)
13. 6 test-tubes in a rack
14. Two boiling tubes
15. Test tube holder
16. 1.0g solid T (PbCO<sub>3</sub> and ZnSO<sub>4</sub> mixture ratio 1:1)
17. Filter paper (Whatman)
18. 1cm length polished magnesium ribbon
19. PH chart scale

**Access to the following**

1. Phenolphthalein indicator supplied with a dropper
2. 2.0M NaOH supplied with a dropper.
3. 2.0M NH<sub>3</sub>(aq) supplied with a dropper.
4. 2.0M dilute nitric acid supplied with a dropper
5. Lead (II) nitrate solution supplied with a dropper
6. Acidified Barium nitrate solution supplied with a dropper.
7. Potassium iodide solution supplied with a dropper.
8. Acidified potassium manganate (VII) supplied with a dropper
9. Universal indicator

**NOTES:      PREPARATIONS**

1. Acidified Barium nitrate is prepared by weighing dissolving 26.0g of  $\text{Ba}(\text{NO}_3)_2$  in 600cm<sup>3</sup> of distilled water. Add 250cm<sup>3</sup> of 2M  $\text{HNO}_3$  and topping up to 1 litre with distilled water.
2. Acidified potassium manganate (VII) is prepared by dissolving 3.16g of solid  $\text{KMnO}_4$  in 400cm<sup>3</sup> of 1M  $\text{H}_2\text{SO}_4$  and making it to one litre with distilled water.
3. Lead nitrate dissolve 33.1g in 800cm<sup>3</sup> distilled water and make it to one litre.
4. Solution Q is prepared by accurately weighing 10.0g of sodium hydroxide pellets and dissolving and topping up to 1 litre.
5. 2M NaOH prepared by dissolving 80g of NaOH pellets in 800cm<sup>3</sup> of distilled water and top up to 1 litre.
6. 2M  $\text{NH}_3(\text{aq})$  measuring 298cm<sup>3</sup> of ammonia solution top up to 1 litre. Label the solution aqueous ammonia (2M  $\text{NH}_3(\text{aq})$ )