

In addition to the apparatus and fittings found in a chemistry laboratory, each candidate will require the following.

1. About 100cm^3 of 0.2M Sodium hydroxide solution.
2. About 200cm^3 of 0.2M hydrochloric acid solution labeled solution X.
3. About 100cm^3 of 0.1M sodium carbonate solution labeled solution Y.
4. One burette (0 - 50ml)
5. One 25.0ml pipette
6. One filter funnel
7. Retort stand
8. Pipette filler
9. Phenolphthalein indicator
10. Two conical flasks (250 ml)
11. White tile
12. 6 dry test tubes
13. 1 boiling tube
14. Metallic spatula
15. 1.5g of solid A
16. 1g pf solid M
17. About 0.2g of sodium hydrogen carbonate
18. Distilled water
19. 1 wooden splint
20. 1 red and 1 blue litmus paper

Access to:

1. Means of heating
2. 2M ammonia solution with a dropper
3. 2M nitric(v) acid with a dropper.
4. Acidified potassium manganate(vii) with a dropper.
5. Acidified potassium dichromate(vi) with a dropper.
6. Universal indicator with a dropper.
7. Standard PH chart
8. 0.2M lead(ii)nitrate solution

NOTE

1. Solid A is a mixture of Zinc carbonate and anhydrous zinc sulphate in the ratio 1:1.
2. Solid M is oxalic acid
3. Solution X is 0.2M Hydrochloric acid prepared by dissolving 17.2cm^3 of concentrated hydrochloric acid in 1 litre.
4. 0.2M sodium hydroxide is prepared by dissolving 8g of sodium hydroxide pellets in 1 litre.
5. Solution Y is prepared by dissolving 10.6g of sodium carbonate in 1 litre.
6. 0.2M lead(ii)nitrate solution is prepared by dissolving 66.2g of lead(ii)nitrate in 1litre of solution.
7. Acidified potassium manganate(vii) is prepared by dissolving 3.2g of potassium manganate(vii)in about 600cm^3 of 2M sulphuric (vi) acid and diluting to one litre of solution.
8. Acidified potassium dichromate(vi) is prepared by dissolving 25g of solid potassium dichromate(vi) in about 600cm^3 of 2M sulphuric (vi) acid and diluting to one litre of solution.
9. 2M ammonia solution is prepared by dissolving 112cm^3 of concentrated ammonia solution in 1 litre.
10. 2M nitric(v) acid is prepared by dissolving 128cm^3 of concentrated acid to water and make up to 1 litre.