OCR (A) Chemistry A-level

PAG 11: pH Measurement

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11.1 pH Problem Solving

Method

Chemicals given:
Solution A-G in no particular order (all 0.1 mol dm^{-3}):

- Ammonia
- Ethanoic acid
- Ethanoate buffer
- Hydrochloric acid
- Methanoic acid
- Sodium hydroxide
- Sulfuric acid

1. Add 5 cm^3 of each solution (A-G) to separate boiling tubes.
2. Use the universal indicator paper to test the pH. Compare the colour of the indicator paper to the colour chart and record the pH.
3. Test the pH using a pH probe to get more accurate values.
4. Using your measured pH values, identify which solutions are acids and which are bases.
5. Test all the bases with red litmus paper.
6. Using a data logger, add a suspected base to suspected acid to identify whether it is a strong base or a weak base. A titration curve can be used to distinguish between strong and weak bases.

Safety

- ➢ At the start of the practical, chemicals A-G are unknown, so treat all unknowns as toxic via all exposure routes.
- ➢ Wear a lab coat, gloves and goggles throughout the experiment.
- ➢ Keep the room well ventilated and work in a fume cupboard if possible.
- ➢ Dispose of all chemicals correctly.

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