**04.1 LOR Mark Scheme**

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| Marks awarded for this answer will be determined by the quality of written communication as well as the standard of the scientific response. Examiners should apply a 'best-fit' approach to the marking.<br><br>**Additional tests limits to lower mark within a level.** This would include, for example, adding silver nitrate to the already identified sodium carbonate.<br>Use of hydrochloric acid with silver nitrate also limits to lower mark within a level as this would not be a logical sequence/method that would work. | **Indicative Chemistry Content**<br><br>**Stage 1 Suggested tests**<br><br>1a Add named acid to all 3<br><br>1b Add water / <u>make into</u> a solution<br><br>1c Add $AgNO_3$<br><br>Ignore addition of $NH_3$ / Ignore additional test for $CO_2$ produced<br><br>**Stage 2 Expected observations - conclusions**<br><br>2a $Na_2CO_3$ will fizz with acid<br><br>2b NaCl gives white ppt with $AgNO_3$<br><br>2c NaF shows no (visible) change / no ppt<br><br>Additional incorrect observations loses point<br><br>**Stage 3 Equations** – state symbols must match method<br><br>3a $Na_2CO_3 + 2HNO_3 \rightarrow 2NaNO_3 + CO_2 + H_2O$ … or ionic<br><br>3b $AgNO_3 + NaCl \rightarrow AgCl + NaNO_3$ … or ionic<br><br>3c correct state symbols |
| **Level 3 (5—6 marks)** | |
| All stages are covered and each stage is generally correct and virtually complete.<br><br>Answer is communicated coherently and shows a logical progression from Stage 1 to Stages 2 and 3 to identify all three compounds in a logical sequence with results and equations for all compounds stated.<br><br>**Covers 2 tests with matching observations, conclusions and equations** | |
| **Level 2 (3—4 marks)** | |
| All stages are covered but stage(s) may be incomplete or may contain inaccuracies<br>OR two stages are covered and are generally correct and virtually complete.<br><br>Answer is communicated mainly coherently and shows a logical progression from Stage 1 to Stages 2 and 3.<br><br>**Covers 2 compounds**<br>Isolated tests on named compounds – max LEVEL 2 | |
| **Level 1 (1—2 marks)** | |
| Two stages are covered but stage(s) may be incomplete or may contain inaccuracies OR only one stage is covered but is generally correct and virtually complete.<br><br>Answer includes isolated statements but these are not presented in a logical order. | |