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Table 5 shows observations of changes from some test-tube reactions of aqueous solutions of compounds **Q**, **R** and **S** with five different aqueous reagents. The initial colours of the solutions are not given.

Table 5

	$\text{BaCl}_2 + \text{HCl}$	$\text{AgNO}_3 + \text{HNO}_3$	NaOH	Na_2CO_3	HCl (conc)
Q	no change observed	pale cream precipitate	white precipitate	white precipitate	no change observed
R	no change observed	white precipitate	white precipitate, dissolves in excess of NaOH	white precipitate, bubbles of a gas	no change observed
S	white precipitate	no change observed	brown precipitate	brown precipitate, bubbles of a gas	yellow solution

1 0 . **1** Identify each of compounds **Q**, **R** and **S**.
You are **not** required to explain your answers.

[6 marks]

Identity of **Q** _____

Identity of **R** _____

Identity of **S** _____

1 0 . **2** Write ionic equations for each of the positive observations with **S**.

[4 marks]

END OF QUESTIONS