No.	Answer
1	**a** Anything below aluminium in the list; for example, copper and lead. **b** Anything above calcium in the list; for example, lithium and potassium.
2	Any two of: copper, lead and silver.
3	The manganese would displace the lead(II) ions from the solution and a coating of lead (a grey solid) would form on the surface of the manganese: $Mn(s) + Pb^{2+}(aq) \rightarrow Pb(s) + Mn^{2+}(aq)$
4	Nothing, because zinc is more reactive (a stronger reductant) than nickel.
5	**a** $Mg(s) \rightarrow Mg^{2+}(aq) + 2e^-$ $\qquad$ $Fe^{2+}(aq) + 2e^- \rightarrow Fe(s)$ **b** $Mg(s) + Fe^{2+}(aq) \rightarrow Fe(s) + Mg^{2+}(aq)$
6	A more reactive metal, such as zinc, must be added. If zinc were to be added, the following reaction would occur: $Zn(s) + Pb^{2+}(aq) \rightarrow Pb(s) + Zn^{2+}(aq)$
7	The nickel would react with the silver ions: $Ni(s) + 2Ag^+(aq) \rightarrow Ni^{2+}(aq) + 2Ag(s)$
8	The aluminium would react with the zinc nitrate, so would not be appropriate. The copper, nickel and silver would not react. Silver is the least reactive and so would be the best (but expensive!) choice.
9	Place a small piece of manganese (or aluminium or magnesium) in each. The zinc solution will react to deposit zinc. The magnesium solution will not.
10	Adding the metal to its own metal salt does not provide useful data.
11	D
12	B (group 2)
13	A and C
14	**a** $3B(s) + 2D^{3+}(aq) \rightarrow 2D(s) + 3B^{2+}(aq)$ **b** $2C(s) + B^{2+}(aq) \rightarrow B(s) + 2C^+(aq)$ **c** $D(s) + 3A^+(aq) \rightarrow 3A(s) + D^{3+}(aq)$
15	C, B, D, A