

SMART EXAM RESOURCES
SUBJECT: CHEMISTRY
TOPIC: ELECTROCHEMISTRY
SET-2-QP-MS

FUEL CELLS

1 Hydrogen–oxygen fuel cells can be used to produce electricity in vehicles.

(i) Write the symbol equation for the overall reaction in a hydrogen–oxygen fuel cell.

..... [2]

(ii) State **one** advantage of using hydrogen–oxygen fuel cells instead of petrol in vehicle engines.

..... [1]

MARK SCHEME:

(i)	$2\text{H}_2 + \text{O}_2 \rightarrow 2\text{H}_2\text{O}$ M1 all formulae(1) M2 equation correct(1)	2
(ii)	no carbon dioxide evolved OR more efficient	1

2 Hydrogen–oxygen fuel cells can be used to produce electricity to power cars. Petrol produces carbon dioxide and carbon monoxide when it powers cars.

(i) State **one** adverse effect of carbon dioxide and carbon monoxide.

carbon dioxide

carbon monoxide

[2]

(ii) State **one** disadvantage, other than cost, of using hydrogen–oxygen fuel cells to power cars compared to using petrol.

..... [1]

MARK SCHEME:

(i)	M1 carbon dioxide: (increased) global warming M2 carbon monoxide: toxic	2
(ii)	needs high pressure to store hydrogen	1