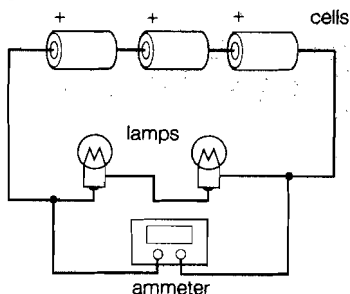


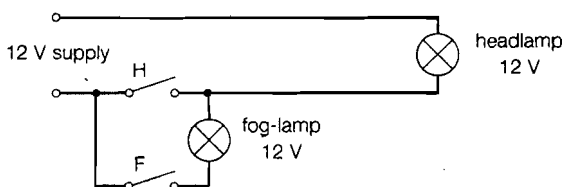
## ► Circuits

Ext EL 1.4D

1. A pupil made an electric circuit like the one below in order to measure the current through two lamps.



- Are the lamps in **series** or **parallel**? [1]
  - The pupil has made a mistake in this circuit. What is the mistake? [2]
  - Draw a diagram showing the **correct** way to connect the circuit. Use the proper circuit symbols in your diagram. [4] (AQA)
2. Jim is a do-it-yourself enthusiast. He fitted a fog-lamp to his car and wired it into the supply to the headlamp. He wired it incorrectly. The circuit he used for the fog-lamp is shown:



H = headlamp switch, F = fog-lamp switch.

- Jim saw that the fog-lamp was lit when he pressed its switch, F, but it was not at full brightness. Use the circuit to explain why. What would Jim notice about the brightness of the headlamp? [3]
- Jim saw that the fog-lamp did not work when he turned on the headlamp switch as well. Why? [2]  
What would Jim notice about the brightness of the headlamp now? [1]
- Jim tried to find out what was wrong. He removed the headlamp bulb. What happened when he then turned on the switches? [1]
- Sketch a diagram of the circuit Jim should have wired to make both the headlamp and the fog-lamp work properly. [2] (OCR)