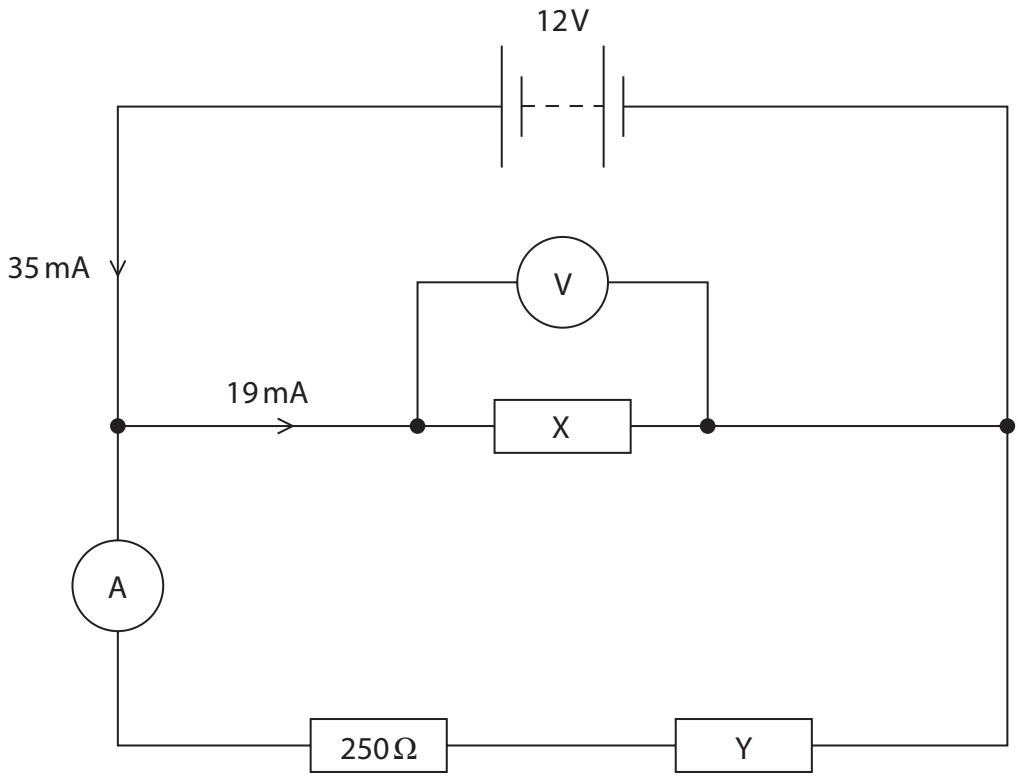
11 The diagram shows a circuit that includes a battery, an ammeter, a voltmeter and three different resistors.



(a) (i) Give the voltmeter reading.

(1)

voltage = ... V

(ii) State the formula linking voltage, current and resistance.

(1)

(iii) Calculate the resistance of resistor X.

(3)

resistance = ... Ω

(b) (i) Give the reason why the reading on the ammeter would be 16 mA.

(1)

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(ii) Calculate the resistance of resistor Y.

(4)

resistance = ... Ω

(c) Resistor X and the voltmeter are removed from the circuit, leaving a break in this part of the circuit.

Explain how the current in the battery changes when these components are removed.

(2)

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(Total for Question 11 = 12 marks)