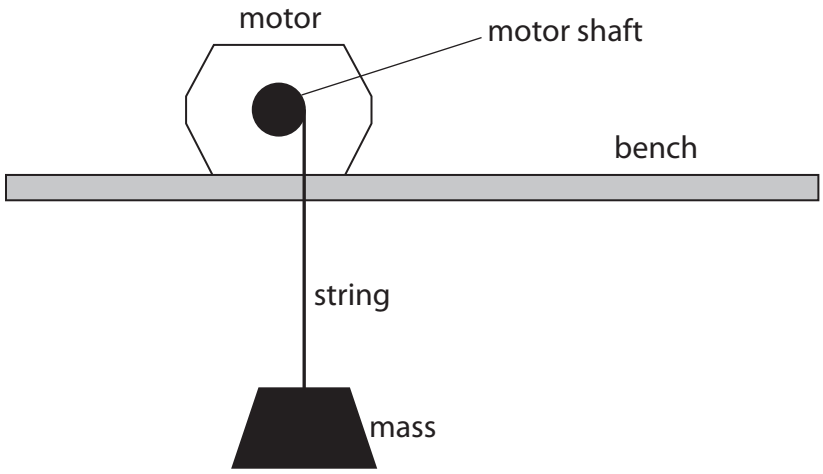
8 A student investigates the efficiency of an electric motor.



She uses the motor to lift a mass.

The table shows her measurements.

Current in motor	1.3 A
Voltage across motor	10.3 V
Time taken to lift mass	4.7 s
Force needed to lift mass	20 N
Distance the mass was lifted	0.85 m

(a) Calculate the electrical energy supplied to the motor during this time.

(2)

energy supplied = ... J

(b) (i) State the equation linking work done, force and distance moved.

(1)

(ii) Calculate the work done on the mass.

(2)

work done = ... J

(iii) State the useful energy transferred to the mass.

(1)

(c) (i) State the equation linking efficiency, useful energy output and total energy input.

(1)

(ii) Calculate the efficiency of the motor.

(2)

efficiency = ...

(Total for Question 8 = 9 marks)