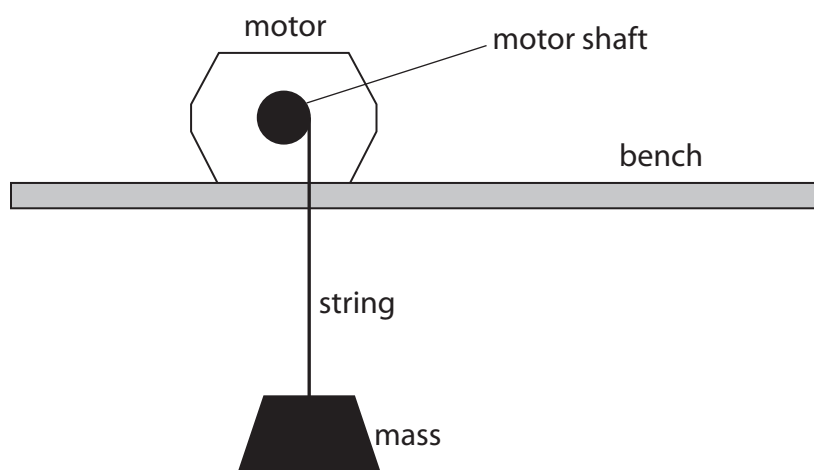


8 A student investigates the efficiency of an electric motor.



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)

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(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)**

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