POWER-SET-2

1

A girl hangs by her hands from a bar in the gymnasium. She pulls herself up until her chin is level with the bar.

The mass of the girl is 48 kg.

She pulls herself up through a distance of 0.25 m.

She does this in 2.0 s.

What is the useful power she uses to pull herself up?

A 6.0 W **B** 24 W **C** 60 W **D** 240 W

2

A crane on a construction site lifts concrete beams.

The useful work done by the crane is 4000 kJ in a time of 160 s.

What is the useful output power of the crane?

A 0.04 kW **B** 25 W **C** 25 kW **D** 640 kW

3

A large electric motor is used to lift a container off a ship.

Which of the following values are enough to allow the power of the motor to be calculated?

A the mass of the container and the distance moved

B the force used and the distance moved

C the current used and the work done

D the work done and the time taken

4

The table shows the times taken for four children to run up a set of stairs.

Which child's power is greatest?

	mass of child / kg	time / s
A	40	10
B	40	20
C	60	10
D	60	20

5

What is the unit of electrical power?

A ampere

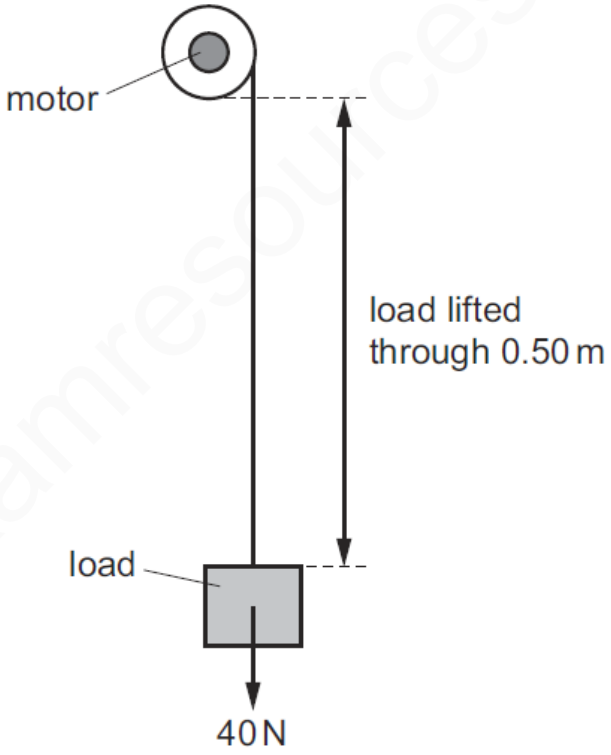
B joule

C volt

D watt

6

A motor is used to lift a load of 40 N.



The power of the motor is 40 W and the system is 20% efficient.

How long does it take the motor to lift the load through 0.50 m?

7

The table gives data for four different electrical devices.

Which device develops the greatest power?

	device	voltage	current
A	car headlight	12 V	3.0 A
B	cooling fan	110 V	0.40 A
C	electric spark generator	400 kV	0.10 mA
D	mains lamp	240 V	0.20 A

8

A car is moving along a straight horizontal road. The car has 1.6 MJ of kinetic energy. The car accelerates for 20 s until the kinetic energy of the car increases to 2.5 MJ.

What is the minimum average power developed by the car engine for this acceleration?

A 45 W **B** 205 W **C** 45 kW **D** 205 kW