Name:

A-Level Physics: **w25 12**

20 The motor of a crane lifts a load of mass 600 kg. The load rises vertically at a constant speed of 12 m per minute.

What is the useful power output of the motor?

A 0.12 kW **B** 1.2 kW **C** 7.2 kW **D** 71 kW

A-Level Physics: **w25 14**

18 The total energy supplied to an electric motor is E. Energy Q is wasted and the remaining energy does useful work.

What is the efficiency of the motor?

A $\frac{Q}{E}$ **B** $\left(\frac{Q}{E}\right) - 1$ **C** $1 - \left(\frac{Q}{E}\right)$ **D** $\frac{(1-Q)}{E}$

A-Level Physics: **s25 13**

17 An electric motor uses 1.7 kW of power when operating normally.

The efficiency of the motor is 53%.

What is the useful output power of the motor?

A 0.032 kW **B** 0.90 kW **C** 3.2 kW **D** 90 kW

A-Level Physics: **s25 14**

14 In which situation is work done on an object?

A The object slides with a constant velocity along a horizontal frictionless surface in a vacuum.

B A person holds the object at arm's length and at a fixed height above the ground.

C A person pushes the object up a frictionless ramp.

D The stationary object floats partially submerged in water.