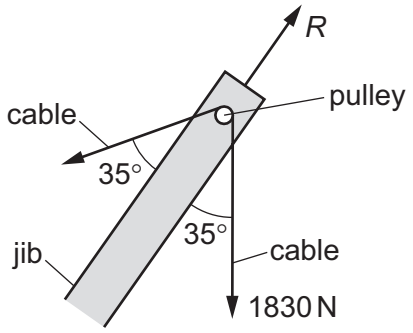
13 The diagram shows the jib of a crane at an angle of 35° to the vertical. A cable passes over a frictionless pulley and carries a load of 1830 N.



The force *R* that the pulley exerts on the cable is in line with the jib. The cable and the pulley are in equilibrium.

What is the value of *R*?

A 1000 N **B** 1500 N **C** 2100 N **D** 3000 N

14 What is a unit for density?

A $N\,m^{-3}$ **B** $g\,mm^{-1}$ **C** $kg\,cm^{-2}$ **D** $\mu g\,mm^{-3}$

15 Which statement about energy is **not** correct?

A Energy is never lost but it may be transferred between different forms.

B In an inelastic collision, the total energy is constant.

C The efficiency of a system is the ratio of the useful energy output to the total energy input.

D When a machine does work, friction reduces the total energy.

16 An electric kettle is rated as having an input power of 1.50 kW and an efficiency of 65.0%.

The kettle is switched on for 2.00 minutes.

How much energy is transferred to the water in the kettle?

A 0.975 kJ **B** 117 kJ **C** 180 kJ **D** 277 kJ