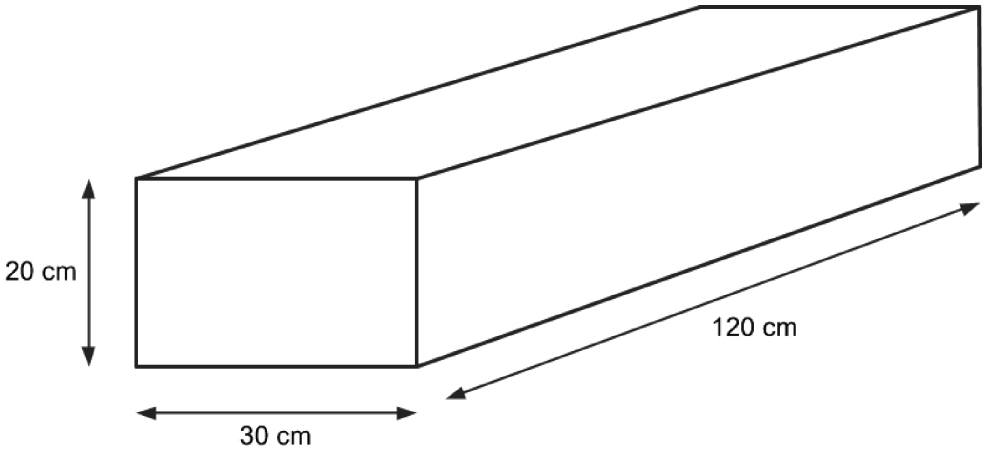
OCR
Oxford Cambridge and RSA

Gateway Science Physics A

J249/01 Paper 1 Foundation Tier

Question Set 20

20 A piece of wood, shown below, has a density of 180 kg / m^3.



Calculate the mass of this piece of wood.

Show your working and give the units.

density = $\frac{\text{mass}}{\text{volume}}$ → density × volume = mass

= 180 × (0.2 × 0.3 × 1.2)

= 180 × 0.072

= 12.96

≈ 13 (2sf)

Answer = 13 Units kg

[6]

Total Marks for Question Set 20: 6

Equations in physics

(final velocity)^2 – (initial velocity)^2 = 2 × acceleration × distance

change in thermal energy = mass × specific heat capacity × change in temperature

thermal energy for a change in state = mass × specific latent heat

energy transferred in stretching = 0.5 × spring constant × (extension)^2

potential difference across primary coil × current in primary coil = potential difference across secondary coil × current in secondary coil