1. Motion, forces and energy

1.3 Mass and Weight

Paper 3 and 4

Answer Key

Paper 3

Q1.

Question	Answer
(a)	(weight =) 50 (N)
	(weight =) mass × *g* **OR** 5 × 10
(b)	75 (J)

Q2.

Question	Answer
(a)	0.11 (mm)
	(average thickness =) 29 ÷ 270
	(average thickness =) total thickness ÷ number of sheets
(b)	(1300 g =) 1.3 kg
	(weight =) 13(.0) N
	(weight =) mass × g OR mass × 10

Q3.

Question	Answer
(a)(i)	balance
(a)(ii)	ruler
(b)	mass = 5(.0) kg
	(W =) m × g OR 5(.0) × 10
	50 (N)
(c)(i)	240 (cm^2)
(c)(ii)	(P =) F ÷ A in any form
	60 ÷ (20 × 12) OR 60 ÷ 240
	0.25 (N / cm^2)

Q4.

Question	Answer
(a)	(1100 – 400 =) 700 (g)
(b)	density = mass ÷ volume OR $\rho = m \div V$ in any form
	(ρ =) 700 ÷ 750
	(ρ =) 0.93 (g / cm^3)
(c)	400 (g) = 0.4 (kg)
	$w = m \times g$ in any form
	0.4 × 10
	(weight =) 4(.0) (N)

Q5.

Question	Answer
(a)	mass in kg **AND** height in m
	area in m^2
(b)(i)	W = m × g
	4000 × 10
	40 000 (N)
(b)(ii)	P = F ÷ A in any recognisable form
	(area =) 0.125 × 4 = 0.50 (m^2)
	b(i) ÷ 5000 OR 40 000 ÷ 0.500
	80 000 N / m^2 OR 80 000 Pa

Paper 4

Q6.

Question	Answer
(a)(i)	7.3×10^7 N
(a)(ii)	(weight is) the gravitational force on a mass / an object (with mass) **OR** (weight is) the effect of a gravitational field on a mass

Q7.

Question	Answer
(a)	($W =$) mg **OR** $3.4 \times 10^3 \times 10$
	3.4×10^4 N