| | **Pressure Force Area Mark Scheme** | |
|---|---|---|
| **1** | $\dfrac{2000\text{ N}}{5\text{ Nm}^{-2}}$ | [1] Area $=$ Force $\div$ Pressure |
| | $= 400\text{ m}^2$ | [1] Correct answer with units |
| **2** | Area $= 0.4 \times 0.8 = 0.32\text{ m}^2$ | [1] Finding area of break pad |
| | $500 \times 0.32 = 160\text{ N}$ | [1] Force $=$ Pressure $\times$ Area |
| **3** | $\dfrac{10000}{2} = 5000\text{ Ncm}^{-2}$ | [1] Pressure $=$ Force $\div$ Area |
| **4** | $101\text{ Nm}^{-2} = 0.0101\text{ Ncm}^{-2}$ <br> $0.0101\text{ N}$ | [1] $1\text{ Nm}^{-2} = 0.0001\text{ Ncm}^{-2}$ |
| **5** | Area $= 0.5 \times 3 = 1.5\text{ m}^2$ | [1] Finding area of crate |
| | $\dfrac{10000}{1.5} = 6670\text{ Nm}^{-2}$ | [1] Correct pressure to 3 s.f. |
| **6** | $\dfrac{0.5}{0.0000001}$ | [1] Pressure $=$ Force $\div$ Area |
| | $= 5 \times 10^6\text{ Nm}^{-2}$ | [1] Correct answer with units <br> o.e. |
| **7** | $\dfrac{0.1}{400}$ | [1] Area $=$ Force $\div$ Pressure |
| | $= 2.5 \times 10^{-4}\text{ m}^2$ | [1] Correct answer with units <br> o.e. |
| **8** | Area $= \pi \times 0.5^2 = 0.25\pi\text{ m}^2$ | [1] Finding area of cylinder |
| | $\dfrac{2}{0.25\pi} = 2.55\text{ Nm}^{-2}$ | [1] Pressure $=$ Force $\div$ Area |