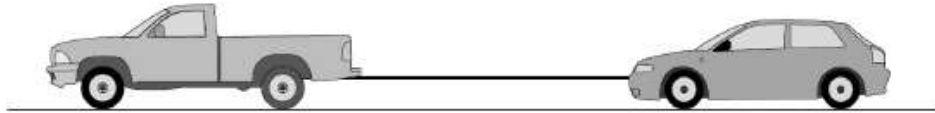


Materials – A2 Physics P1**1. No.24**

A truck of mass $2.1 \times 10^3 \text{ kg}$ tows a car of mass $1.3 \times 10^3 \text{ kg}$ along a horizontal road.
 The total resistive force on the car is 1100 N .
 The acceleration of the car and truck is 2.3 m s^{-2} .



What is the tension in the tow rope?

[1 mark]

A 3000 N ☐

B 4100 N ☐

C 7800 N ☐

D 8900 N ☐

2. No.27

A mass M is suspended from a spring. When the mass is at rest at the equilibrium position, the elastic potential energy stored is E .
 An extra mass of $2M$ is added to the spring and the spring extends while still obeying Hooke's law.

What is the total elastic energy stored when the system is at rest at the new equilibrium position?

[1 mark]

A $2E$ ☐

B $3E$ ☐

C $4E$ ☐

D $9E$ ☐

3. No.28

Two wires P and Q are made of the same material and have the same cross-sectional area.

P has an original length L and is subject to a tensile force F . P extends a distance x .

Q has an original length $2L$ and is subject to a tensile force $2F$.

Which statement is correct?

[1 mark]

A The stress in P and the stress in Q are the same.

☐

B The extension of Q is $2x$.

☐

C The strain of Q is double the strain of P.

☐

D The value of $\frac{\text{stress}}{\text{strain}}$ for P is half that of Q.

☐

4. No.30

Which value of resistance **cannot** be made by combining three $10\ \Omega$ resistors?

[1 mark]

A $3.3\ \Omega$

☐

B $6.7\ \Omega$

☐

C $15\ \Omega$

☐

D $25\ \Omega$

☐