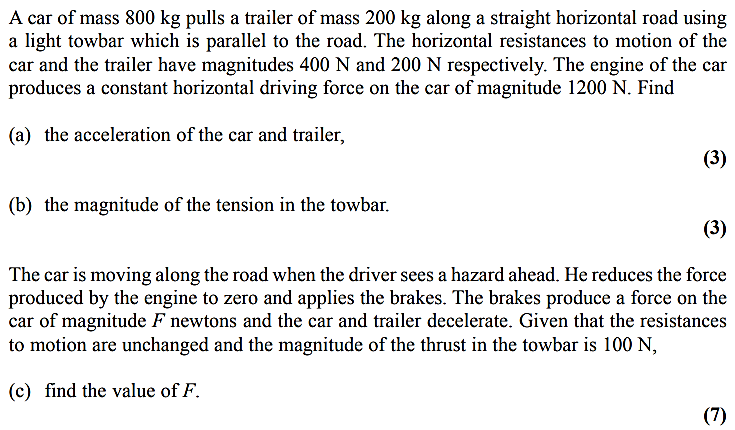
1. **Connected Particles**

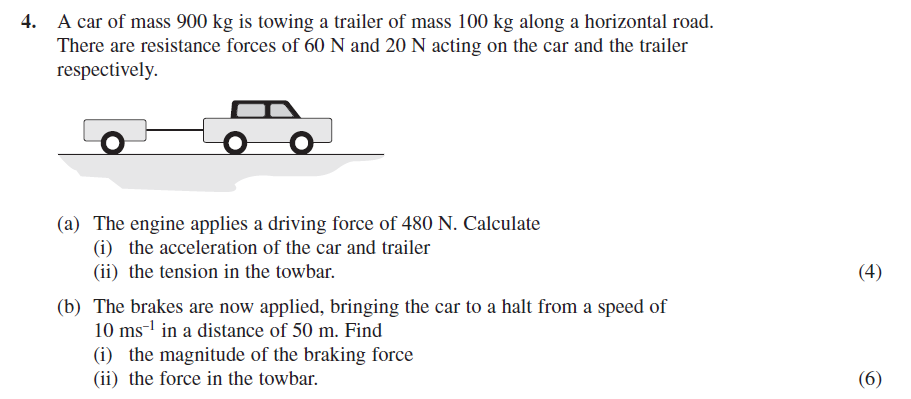
When we have multiple connected objects moving in the same straight line, **they can be considered either as two separate particles, or as a single particle**, but **all forces** acting on the particle must be considered.

What assumptions are made?

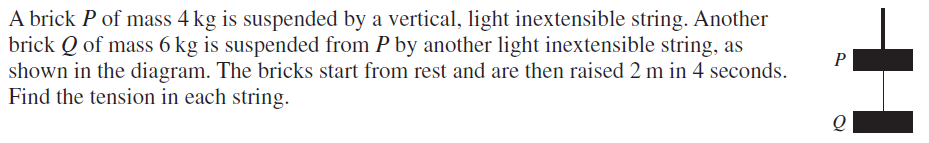
**Example** *(EdExcel M1 June 2009 Q6)*



**Test Your Understanding**



**Vertical Example**

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**Example – Using Newton’s 3rd Law for Stacked Objects**

Newton’s 3rd Law: For every action there is an equal and opposite reaction

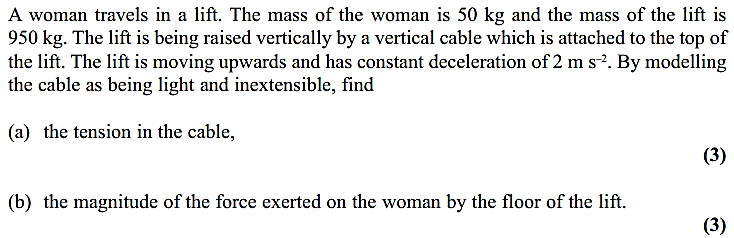
*Therefore when two bodies and are in contact, if body exerts a force on body , then body exerts a force on body that is equal in magnitude and acts in the opposite direction.*

*[Textbook]* A light scale-pan is attached to a vertical light inextensible string. The scale-pan carries two masses and . The mass of is 400g and the mass of is 600g. rests on top of , as shown in the diagram.

The scale-pan is raised vertically, using the string, with acceleration 0.5 ms-2.

1. Find the tension in the string.
2. Find the force exerted on mass by mass .
3. Find the force exerted on mass by the scale-pan.

**Test Your Understanding – Motion of a Lift** *(EdExcel M1 May 2013 Q2)*



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