

Newton's third law: (there might not be a quiz on this because there could be just an exam instead, but some of the questions could be one the exam)

1. Does a stick of dynamite contain force?
2. Explain why you feel pushed backward when you speed up in your car moving forward.
3. If its true, and it is, that as you fall downwards accelerating you exert a gravity force upward on the earth, does the earth accelerate as a result? If so, why don't you notice it?
4. Why does a rope climber pull down on a rope to move up?
5. Famous question: The horse-cart paradox. A farmer gets into a cart and tells his horse to go home. The horse says that's impossible because if he, the horse, pulls on the cart then, by Newton's 3<sup>rd</sup> Law, the cart pulls back on him with an equal and opposite force so then they can't go anywhere because the forces cancel (equal and opposite). What is wrong with this? Resolve the famous paradox.
6. If a massive truck and a light car have a head on collision, which vehicle experiences a larger force on impact from the impact? Which experiences a larger acceleration?