

- 1
 - a-c
 - In Paper
 - d
 - Hadrons are made of quarks, and thus interact with any force, and are the only particle to interact with the strong force. There are two classes of hadron; mesons, made of a quark and antiquark; and baryons, made of 3 quarks. The only stable free baryon is the proton, which can be made from several decays, including from a neutron (beta-minus)
- 2
 - a
 - In Paper
 - b
 - There is a force on the gas as the gas's momentum is changing, which requires a force, due to Newton 2. There is a deceleration as the resistive force is greater than the weight, therefore resultant force. acceleration will be in the same direction as resultant, due to Newton 2
 - c
 - In Paper
 - d
 - More dust to displace, as more work done there will be a larger resultant force on the system therefore greater deceleration
- **3
 - a-e
 - In Paper
 - f
 - The ball must spend longer in the air to cover the same distance with a lower velocity.
- 4
 - a-b
 - In Paper
 - c
 - They have the same number of protons, while Y has fewer neutrons than X.
 - d
 - SC of ion X is less than SC on Y as the SC is inversely proportional to the mass
 - e
 - In Paper
- 5
 - a
 - The amount of work it takes to move a coulomb of charge through the cell
 - b-e
 - In Paper
 - f

- New Cells must be added in parallel, as the power from each cell will be reduced without increasing the voltage of the bulb.
- 6
 - a
 - They will be in complete antiphase, with the same frequency.
 - b
 - In Paper
 - c
 - They must have the same speed, be moving in opposite directions, and have the same wavelength
 - d-f
 - In Paper
- MCQ
 - See Appendix