1. Thermistors are used in central heating systems, within a thermistor the resistance of wire changes as temperature changes. The change in resistance allows systems to turn on when it is cold and turn off at a set temperature. Explain the change in resistance of a thermistor as the temperature changes.

2. Electromagnetic waves are all around us; they flow invisibly through the air. They have been harnessed to improve our lives in many different ways. Explain how three parts of the spectrum are used in everyday life.

3. Nuclear power provides about 30% of Japan energy requirements. On 11th March 2011, an earthquake caused the Fukushima Daiichi Nuclear Power Plant in Ōkuma, Japan to explode. Over the next week, high levels of radioactivity leaked from the plant, over 100,000 people were evacuated from their homes to avoid exposure. While people were killed due to the earthquake, no one has died from the power plant explosion. Evaluate the generation of energy by nuclear power.

4. When a skydiver jumps out of a plane, the forces acting upon them change as they move towards the ground. Describe the different forces acting on a skydiver.

5. Seat belts in cars were not made compulsory in the UK until 1983, before this 6,000 people a year died in traffic accidents. Since then the number has decreased year on year until in 2015 1,732 people were killed in car accidents. Seat belts are not the only safety features in cars. Describe some the safety features that are in modern cars.

6. Current, resistance and potential difference behave differently in series and parallel circuits. Describe these differences.

7. A Wave can be either transverse or longitudinal. While the two different types of waves have a lot in common, they also have some important differences. Describe the two different types of waves. You may use a diagram to help your answer.

8. Electricity is very dangerous, shocks from faulty wiring or lightning can kill instantly. The modern house has a large number of feature to protect the user from shocks.
Describe these features, including those in a plug.