



*“The causes of global climatic change are essentially human.” Discuss this statement. [15 marks]*

### **Introduction**

Global warming is a change that is occurring but there are various suggestions and theories as to the causes of global warming.

### **Human Causes**

Many scientists argue that global warming is happening at the current rate due to human activities.

The Greenhouse Effect

Argument that humans are drastically increasing the amount of CO<sub>2</sub>, Methane, CFCs, nitrous oxides and sulphur dioxide in the atmosphere.

The main causes of the increases are due to growing global population levels (more transport, more consumption, more food needed) but also increasing levels of industrialisation in many of the poorer countries and the use of fossil fuels as the energy to power most of it.

These gases are adding to the existing greenhouse layer and making it thicker. The greenhouse layer allows solar radiation to pass through (so incoming solar radiation levels remain stable) but it traps longer wave heat radiation emitted from the earth's surface. This is leading to an in-balance in the energy budget and causing the atmosphere to warm up.

### **Natural Causes**

Some scientists argue that humans are not the main cause and that it is a natural process.

Global atmospheric temperatures have always varied throughout time and respond to changes in the amount of incoming solar radiation at certain times due to solar flares/sunspots.

There are arguments that increased volcanic activity can have a significant effect on atmospheric temperatures due to the huge amount of gases released during eruptions.

### **Conclusion**

In conclusion both arguments are valid but the significant aspect is that in the past global temperature changes have tended to be more gradual when caused by natural factors. The main concern of the current warming is its rapidity & this seems to be at least influenced if not caused by the emissions of greenhouse gasses by humans. Most current scientists believe that global warming is being seriously enhanced by human activities.