Question 24

2002 HIGHER SCHOOL CERTIFICATE EXAMINATION

Physics

Section I – Part B (continued)

Marks

Question 24 (8 marks)

In terms of band structures and relative electrical resistance, describe the differences between a conductor, an insulator and a semiconductor. **8**

In a conductor the valence band and the conduction band are together, with no gap inbetween them. This structure of the conductor make it have high resistance, making it useful for electrical wires. ~~electrons are able to flow~~ or anything compact.

An insulator aslo has a valence band & a conduction band but they are to far apart for it to be able to have andy electrical resistance. No electricity can flow through an insulator.

A semiconductor has a valence band & a conduction band, with a small gap inbetween. ex (silicon, germanium) semiconductors can have electricity flow through them sometimes. They do not have a high resistance.