

## 2010 Paper 5 Question 2

### Computer Design

Gordon Moore's "law" was originally an observation about transistor density improving exponentially and the implications for the semiconductor industry.

- (a) Does Moore's law still apply to transistor density? Justify your answer. [4 marks]
- (b) Can Moore's law be applied to processor performance? Justify your answer. [4 marks]
- (c) Communication to peripherals, including disks, now uses serial rather than parallel communication techniques.
- (i) What are the electrical reasons for this change? [4 marks]
- (ii) What are the economic reasons for this change? [4 marks]
- (d) Why did EDSAC perform calculations in a bit-serial manner and yet modern processors compute bit-parallel? [4 marks]