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]