Computer Design

(a) Pipelining is used to improve processor performance and yet it increases instruction execution latency. How does pipelining improve performance? 

[4 marks]

(b) Is the pipelining technique scalable to ever more pipeline stages? Justify your answer.

[6 marks]

(c) Flynn’s original taxonomy of parallel architectures identifies four classes of parallelism: SISD, SIMD, MISD, MIMD. What do these acronyms mean?

[4 marks]

(d) Today’s commercial desktop processors are often said to be “many-core”. How would you classify them using Flynn’s taxonomy? Do they exhibit other forms of parallelism?

[6 marks]