**3   Computer Design (tmj32)**

(a)  Explain where a multicore processor with a short-vector instruction set fits within Flynn's taxonomy? [3 marks]

(b)  Describe and contrast Amdahl's and Gustafson's laws. [4 marks]

(c)  Explain how a general-purpose heterogeneous multicore, such as Arm's big.LITTLE, can out-perform a homogeneous design. [4 marks]

(d)  Computational sprinting is a technique to increase the performance of a core for a brief amount of time by temporarily raising its frequency and voltage. Describe the types of workload where computational sprinting on a general-purpose core would out-perform a specialised accelerator. [4 marks]

(e)  Comment on the advantages and disadvantages of computing within a reconfigurable fabric (e.g. an FPGA) alongside the processor within the same SoC. [5 marks]