(a) One of the main heuristic rules for query optimisation is to apply SELECT and PROJECT before JOIN. Explain why. [4]

[4]

[12]

(c) A file of 4096 blocks is to be sorted with an available buffer space of 64 blocks. How many passes will be needed in the merge phase of the external sort-merge algorithm? [5]

(d) Outline the six steps of the heuristic algebraic optimisation algorithm.

(b) What is the difference between pipelining and materialisation?

Total mark for this question: 25