5. (a) Explain the operation of the I/O mechanisms listed below. Your answers should identify the advantages and disadvantages of each mechanism, and use appropriate diagrams to illustrate your explanations.

    i. Memory mapped I/O.   [5]

    ii. Polled I/O.   [5]

    iii. Interrupt-driven I/O.   [5]

(b) Explain how context switching is related to interrupt-driven I/O. Comment on why context switching is required and how it is achieved.   [4]

(c) Explain how direct memory access (DMA) operates, giving details of when it is most appropriate to use DMA.   [6]