

## 2002 Paper 11 Question 5

### Operating System Foundations

(a) Write brief notes on the following:

(i) Interrupt-based I/O. [3 marks]

(ii) Direct Memory Access. [3 marks]

(iii) File access control in Unix. [3 marks]

(iv) Mounting file systems in Unix. [3 marks]

(b) You are one of the design team of the new Xinu file system. As part of this design you have proposed an inode structure similar to that in “traditional” Unix. (Blocks are assumed to be 4KB, and file pointers are 4 bytes.)

(i) Give details of your proposal for the inode structure. [6 marks]

(ii) Calculate the maximum file size, in blocks. [2 marks]