## 2005 Paper 1 Question 11

**Operating Systems**

(*a*)  Describe with the aid of a diagram the on-disk layout of a UNIX V7 filesystem. Include in your description the role of the *superblock*, and the way in which free inodes and data blocks are managed.                    [6 marks]

(*b*)  Describe with the aid of a diagram a UNIX V7 *inode*.                    [6 marks]

(*c*)  Estimate the largest file size supported by a UNIX V7 filesystem.                    [2 marks]

(*d*)  Suggest *one* reliability enhancement and *two* performance enhancements which could be made to the UNIX V7 filesystem.                    [2 marks each]