1996 Paper 2 Question 9

Unix Case Study

(*a*) Draw a diagram of the address space of a Unix process. Indicate which parts may be shared with other processes. [5 marks]

(*b*) Explain the Unix system call mechanism. [5 marks]

(*c*) Describe how the fork system call is implemented. Discuss the mechanism from the viewpoint of efficiency and support for sharing between families of processes. How may a parent synchronise with the termination of a child? [6 marks]

(*d*) Contrast the execution by the shell of the commands

```
c1 > file1
c2 < file1 > file2
c3 < file2
```

with the execution of the single command

```
c1 | c2 | c3
```

[4 marks]