# Worksheet 2 Role of an operating system

1. One of the tasks of an operating system is **processor scheduling**.

One of the aims of a scheduling operation is to make sure that each process in a multiprocessing machine completes in as short a time as possible. Imagine there are four currently active processes:

**Process 1** involves a lot of calculations and has very little input or output

**Process 2** has very few calculations to perform, but spends a lot of time looking up information from disk

**Process 3** consists almost entirely of printing a very long word-processed document

**Process 4** involves a user typing a document into a word processor, with long pauses for thought in between typing

A currently executing process can be interrupted at any time.

One reason for an interrupt might be that a process has had its slice of processor time (a few milliseconds) and it is the turn of another to use the processor.

What other reason could there be for an interrupt? [1]

Which process above will you give the highest priority to? Why? [2]

2. What is meant by virtual memory? Why is this necessary or desirable? What are the advantages and disadvantages of using virtual memory? Why is the use of virtual memory not so important as it was, say, 10 years ago? [6]

3. What is the difference between multitasking and multiprocessing? [4]

4. Backing store management is a task performed by the operating system. The OS maintains a **file allocation table** (**FAT**), which is a **table** that provides a map of the clusters (the basic units of logical storage on a hard disk) that a **file** has been stored in.

It updates this table whenever a file is created, added to, moved, copied, etc.

What other tasks are involved in backing store management? [2]