2002 Paper 1 Question 12

Operating Systems

Two important facilities provided by a conventional operating system (OS) are

- protection between different parts of the system,

- convenient programming interfaces by abstraction from the basic facilities exposed by the hardware.

Illustrate how these facilities are provided for the following four resources. In each case you should describe how protection is enforced and outline the interface that the hardware provides to the OS and an interface that the OS may provide to an application:

(a) CPU processing time; [5 marks]

(b) access to a device, such as a serial or parallel data port; [5 marks]

(c) storage of data and code in memory; [5 marks]

(d) storage of files on disk. [5 marks]