

1.2 SOFTWARE & SOFTWARE DEVELOPMENT · 1.2.1

Operating systems: functions & memory management

Original practice questions · 34 marks · about 45 minutes · spec 1.2.1(a)(b)

Instructions. Answer all questions. The number of marks is shown in brackets []. Quality of written communication is assessed in the extended-response question.

1 Total: 4 marks

This question is about operating systems.

(a) State the purpose of an operating system. [1]

(b) State **three** functions of an operating system. [3]

2 Total: 5 marks

This question is about memory management.

(a) Describe what is meant by *memory management*. [2]

(b) Explain one benefit of memory management to the user. [3]

3

Total: 6 marks

An operating system divides up physical memory so that several programs can run at once.

- (a) State the name of, and describe, **two** methods an operating system can use to divide up memory. [4]

- (b) State which of these methods uses equally sized divisions. [1]

- (c) State what a page table stores. [1]

4

Total: 6 marks

This question is about virtual memory.

- (a) Describe what is meant by *virtual memory*. [2]

- (b) Describe how virtual memory allows a user to keep running programs when physical memory is full. [2]

- (c) Explain one drawback of relying heavily on virtual memory. [2]

5

Total: 4 marks

This question is about the role of the operating system.

- (a) Explain why an operating system is needed between the user and the hardware. [2]

- (b) State where the operating system is stored and how it is loaded when the computer is switched on. [2]

A computer runs several applications at the same time, sharing a limited amount of RAM.

Explain how an operating system manages the memory available to applications, and why this management is necessary.

[9]

END OF QUESTIONS