



# **UNIVERSITI TUN HUSSEIN ONN MALAYSIA**

## **FINAL EXAMINATION SEMESTER I SESSION 2010/2011**

**COURSE NAME** : ASAS SISTEM  
PENGOPERASIAN

**COURSE CODE** : DIT 2033

**PROGRAMME** : 2 DIT

**EXAMINATION DATE** : NOVEMBER/DECEMBER 2010

**DURATION** : 2 1/2 HOURS

**INSTRUCTIONS** : ANSWER ALL QUESTIONS

**THIS QUESTION PAPER CONSISTS OF FIVE (5) PAGES**

- Q1**
- a) What are multiprogramming? (2 marks)
  - b) What are **two** functions of operating system? (4 marks)
  - c) Distinguish between the client-server and peer-to-peer models of distributed systems? (4 marks)
  - d) Discuss the following processing environments:
    - i) Single-processor system
    - ii) Multiprocessor system(4 marks)
  - e) Discuss **three** differences between personal computer operating system and main frame operating system. (6 marks)

- Q2 a) Figure 1 shows the layered structure of a MSDOS operating system. Briefly explain the structure and discuss **two** advantages and disadvantages of this structure.

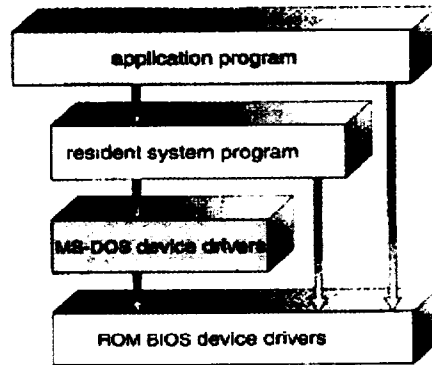


Figure 1: MSDOS layered structure

(6 marks)

- b) What is the purpose of command interpreter? Why is it usually separated from kernel?  
(4 marks)
- c) Figure 2 shows the process states commonly used for multiprogramming. Explain all **six** process states as shown in figure below and discuss how two or more application programs run at the same time.

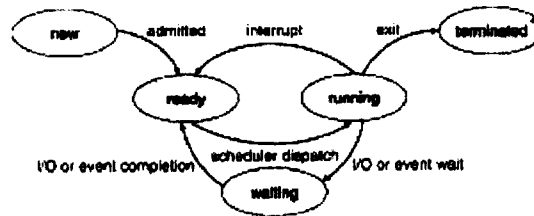


Figure 2: Process states

(8 marks)

- d) What are the **two** model of interprocess communications?  
(2 marks)

- Q3**
- a) Describe the difference between short term and long term scheduling. (4 marks)
  - b) Discuss how the following pairs of scheduling criteria conflict in certain settings.
    - i) CPU utilization and response time.
    - ii) Average turnaround time and maximum waiting time.
    - iii) Input output (I/O) utilization and CPU utilization. (6 marks)
  - c) Discuss the importance of I/O-bound programs from CPU-bound programs. (4 marks)
  - d) Explain the following scheduling;
    - i) First-come First serve
    - ii) Shortest job first
    - iii) Round robin (6 marks)
- Q4**
- a) Compare paging with segmentation with respect to the amount of memory required by the address translation structures in order to convert virtual addresses to physical addresses. (4 marks)
  - b) Discuss the cause of trashing? How does the system detect trashing? Once it detects trashing, what can the system do to eliminate this problem? (6 marks)
  - c) Briefly described direct memory access (DMA) function. (2 marks)
  - d) On early computers, every byte of data read or written was directly handled by the CPU without direct memory access (DMA) function. Discuss **two** implications does this organization have for multiprogramming? (6 marks)
  - e) Discuss the hardware required to support demand paging. (2 marks)

- Q5**
- a) System that support sequential files always have an operation to rewind files. Do system that support random access files need this too? Explain. (2 marks)
  - b) Distinguishing file type is important for designing good operating system , why? Give **three** example of file type with their specific application functionality and for each of them give **two** commonly used extension attributed to them. (8 marks)
  - c) File access control and protection are commonly integrated in multiple user access operating system. Why? Give **two** types of operation used to be controlled in file systems. (4 marks)
  - d) List three most common file operations and discuss each of them. Include example if necessary to elaborate your discussion. (6 marks)