



LOYOLA COLLEGE (AUTONOMOUS), CHENNAI – 600 034

B.Sc. DEGREE EXAMINATION – COMPUTER SCIENCE

FIFTH SEMESTER – NOVEMBER 2016

CS 5504 – OPERATING SYSTEM

Date: 01-11-2016

Dept. No.

Max. : 100 Marks

Time: 09:00-12:00

PART – A

ANSWER ALL QUESTIONS:

(10x2 = 20 marks)

1. What are the two main functions of an operating system?
2. Define mainframe operating systems?
3. What are the two models of interprocess communication? What are the strengths and weaknesses of the two approaches?
4. What is a resource-allocation graph?
5. Define logical address and physical address.
6. List the steps needed to perform page replacement?
7. Define spooling.
8. What is the need for DMA?
9. Define rotational latency, disk bandwidth and seek time.
10. What is a file? List down various file attributes.

PART – B

ANSWER ALL QUESTIONS

(5x8 = 40 marks)

11. a) Explain in detail about various components of computer Hardware.

(Or)

b) Explain in details about various system calls associated with process Management.

12. a) Draw the state diagram of a process from its creation to termination, including all transitions, and briefly elaborate every state and every transitions.

(Or)

b) Discuss about the necessary conditions for deadlock. Explain in detail about how to recover from deadlock.

13. a) Discuss in detail about Swapping with neat diagram.

(Or)

b) Explain in detail about the following page replacement algorithm.

i) First in First out Algorithm. (4)

ii) Optimal Page Replacement Algorithm. (4)

14. a) Explain in details about the operations of a DMA controller with neat diagram.

(Or)

b) Explain in detail about the I/O software Layers with suitable diagram.

15. a) Explain about the following file allocation methods

i) Contiguous File Allocation.

ii) Linked list Allocation. (4+4)

(Or)

b) Explain about various directory system structures – Single level, two level and hierarchical structures.

PART – C

ANSWER ANY TWO QUESTIONS

(2x20 = 40 marks)

16. a) Explain in detail about the following operating system Structure

i) Monolithic system (5)

ii) Layered system (5)

b) Explain about Shortest job first and Round robin scheduling algorithm.

17. a) What is page fault? Write down the sequence of steps for handling the page fault with neat diagram.

b) Explain in detail about Graphical User Interface of windows operating system with suitable diagram.

18. a) Explain in detail about UNIX file system and i-node structure.

b) Explain in detail about Bankers Algorithm for deadlock avoidance with suitable examples.

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