

CBCS Scheme

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16MCA24

Second Semester MCA Degree Examination, Dec.2017/Jan.2018

Operating Systems

Time: 3 hrs.

Max. Marks: 80

Note: Answer FIVE full questions, choosing one full question from each module.

Module-1

- 1 a. Explain with a neat diagram memory hierarchy. (08 Marks)
b. Write short notes on:
i) Distributed systems
ii) Clustered systems (08 Marks)

OR

- 2 a. Explain different types of system programs. (08 Marks)
b. Write short notes on:
i) Layered system
ii) Virtual machines (08 Marks)

Module-2

- 3 a. With a neat diagram, explain process states. (08 Marks)
b. Explain with a neat diagram multithreading models. (08 Marks)

OR

- 4 a. Solve the following set of processes that arrive at time 0, with the length of Cpo-Burst time given in milliseconds. (08 Marks)
FCFS (draw Gant chart and find AWT)

Process	Burst Time
P ₁	24
P ₂	3
P ₃	3

- b. Explain solution of Readers-Writers problem. (08 Marks)

Module-3

- 5 a. With a neat diagram, explain Resource Allocation Graph. (08 Marks)
b. What is Deadlock? Explain the necessary conditions for its occurrence. (08 Marks)

OR

- 6 a. Explain with a help of supporting diagram TLB improves the performance of demand paging. (08 Marks)
b. How many page faults occur for the following algorithms using a given memory string?
FIFO: 7, 0, 1, 2, 0, 3, 0, 4, 2, 3, 0, 3, 2, 1, 2, 0, 1, 7, 0, 1. (08 Marks)

Module-4

- 7 a. Explain the following terms briefly:
i) File attributes,
ii) File types. (08 Marks)
b. Explain with a neat diagram Tree Structure Directory. (08 Marks)

OR

- 8 a. Explain contiguous allocation in file allocation methods. (08 Marks)
- b. Explain the following with respect to free space management:
 - i) Bit vector
 - ii) Grouping. (08 Marks)

Module-5

- 9 a. Explain components of Linux operating system. (08 Marks)
- b. Discuss on process management in Linux OS. (08 Marks)

OR

- 10 a. Discuss on main memory management in Linux OS. (08 Marks)
- b. Explain components of Linux virtual file system. (08 Marks)
