

# CBCS Scheme

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16/17MCA24

## Second Semester MCA Degree Examination, June/July 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. What is operating system? Explain with a neat diagram the components of computer systems. (08 Marks)
- b. Explain layered approach with diagram. (08 Marks)

OR

- 2 a. Explain different types of system call. (08 Marks)
- b. Explain different types of service provided by the operating systems. (08 Marks)

### Module-2

- 3 a. Explain process states with a diagram. (08 Marks)
- b. Consider the following set of process that arrive at time zero. I) FCFS II) SJF.

I)

Process	Burst time
P <sub>1</sub>	24
P <sub>2</sub>	3
P <sub>3</sub>	3

II)

Process	Burst Time
P <sub>1</sub>	6
P <sub>2</sub>	8
P <sub>3</sub>	7
P <sub>4</sub>	3

Draw the Gantt chart and find (i) waiting time of each process (ii) average waiting time.

(08 Marks)

OR

- 4 a. Explain monitors with diagram. (08 Marks)
- b. With diagram, explain different types of multithreading models. (08 Marks)

### Module-3

- 5 a. Explain with diagram dining philosophers problem. (08 Marks)
- b. Explain with diagram the concept of swapping. (08 Marks)

OR

- 6 a. Explain Translation LookASide Buffer (TLB) with diagram. (08 Marks)
- b. Solve page replacement algorithms using FIFO(3 frames)

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 different types of file attributes. (08 Marks)  
b. With a diagram, explain single-level directory. (08 Marks)

**OR**

- 8 a. Explain with a diagram, indexed allocation. (08 Marks)  
b. Explain different types of file types. (08 Marks)

**Module-5**

- 9 a. Explain with a diagram components of a Linux system. (08 Marks)  
b. Explain different types of process management in Linux operating systems. (08 Marks)

**OR**

- 10 a. Explain inter-process communications in Linux operating systems. (08 Marks)  
b. With a diagram, explain memory management in Linux operating systems. (08 Marks)

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