



# P.E.S. College of Engineering, Mandya - 571 401

(An Autonomous Institution affiliated to VTU, Belagavi)

**First Semester, M. Tech - Computer Science and Engineering (MCSE)**

**Semester End Examination; Jan. - 2020**

**Advanced Operating system**

*Time: 3 hrs*

*Max. Marks: 100*

*Note: Answer FIVE full questions, selecting ONE full question from each unit.*

## UNIT - I

- |   |    |                                                                                  |    |
|---|----|----------------------------------------------------------------------------------|----|
| 1 | a. | Explain the different OS services in detail.                                     | 10 |
|   | b. | Explain any four theoretical advances in the development of OS.                  | 10 |
| 2 | a. | Explain the process states with a neat diagram along with process control block. | 10 |
|   | b. | Differentiate between Interrupt and a Trap.                                      | 5  |
|   | c. | Discuss any five characteristics of a suspended process.                         | 5  |

## UNIT - II

- |   |    |                                                                            |    |
|---|----|----------------------------------------------------------------------------|----|
| 3 | a. | Discuss any four advantages and disadvantages of ULT's and KLT's.          | 10 |
|   | b. | Explain the key design issues of on SMP OS.                                | 10 |
| 4 | a. | With a neat diagram, explain the concept of handling page fault in detail. | 10 |
|   | b. | Analyze the characteristics of paging and segmentation.                    | 10 |

## UNIT - III

- |   |    |                                                                                                   |    |
|---|----|---------------------------------------------------------------------------------------------------|----|
| 5 | a. | List and explain five different categories of synchronization granularity.                        | 10 |
|   | b. | Differentiate between :                                                                           | 10 |
|   |    | i) Hard and Soft real time tasks                      ii) Periodic and A-periodic real time tasks |    |
| 6 | a. | With a neat diagram, explain the Linux Vserver token bucket scheme.                               | 10 |
|   | b. | List and explain five general areas of requirements for a real time OS.                           | 10 |

## UNIT - IV

- |   |    |                                                                                                                                             |    |
|---|----|---------------------------------------------------------------------------------------------------------------------------------------------|----|
| 7 | a. | Explain the relative advantages and disadvantages of an embedded OS based on existing commercial OS compare to a purpose built embedded OS. | 10 |
|   | b. | Explain in detail the concurrency mechanism available in ecos.                                                                              | 10 |
| 8 | a. | Discuss the key objectives of computer security in detail.                                                                                  | 10 |
|   | b. | What is a Tiny OS component? Explain the default scheduling disciplines for Tiny OS along with software it consists of.                     | 10 |

## UNIT - V

- |    |    |                                                                                                      |    |
|----|----|------------------------------------------------------------------------------------------------------|----|
| 9  | a. | Define a Daemon. Explain the concept of Daemon with respect to the DOS, Unix, Windows NT and Mac OS. | 10 |
|    | b. | With a neat diagram, explain the task control flow in the kernel.                                    | 10 |
| 10 | a. | Discuss Windows NT/2000 organization.                                                                | 10 |
|    | b. | Explain the kernel local procedure calls and IPC.                                                    | 10 |