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

(An Autonomous Institution affiliated to VTU, Belagavi)

Second Semester, Master of Computer Applications (MCA)

Semester End Examination; May/June - 2018

Operating System

Time: 3 hrs

Max. Marks: 100

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

UNIT - I

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|------|---|----|
| 1 a. | Explain the user view and system view of operating system. | 4 |
| b. | Explain the different services provided by operating system. | 10 |
| c. | Define system program. Explain the different categories provided by system program. | 6 |
| 2 a. | Explain real time system, distributed system and clustered systems. | 6 |
| b. | Define system calls. List and explain different types of system calls. | 10 |
| c. | Explain multiprogramming and multiprocessing systems. | 4 |

UNIT - II

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|------|---|---|
| 3 a. | Explain the process control block. | 6 |
| b. | Define scheduler. Explain the types of schedulers. | 6 |
| c. | Explain different threading issues. | 8 |
| 4 a. | Define process. With a neat diagram, explain the different process state. | 6 |
| b. | Explain different multithreading models. | 6 |
| c. | Explain different scheduling criterias. | 8 |

UNIT - III

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| 5 a. | Define critical-section. Explain the necessary requirements to satisfy critical-section. | 6 |
| b. | With the code, explain the implementation of Readers-Writers problem. | 6 |
| c. | Define deadlock. Explain the necessary conditions for a deadlock. | 8 |
| 6 a. | Explain the operations provided by semaphores. | 4 |
| b. | With code, explain the Dining Philosopher's problem. | 6 |
| c. | With proper data structure, explain the operations of Bankers algorithm. | 10 |

UNIT - IV

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| 7 a. | Explain paging H/W with TLB. | 10 |
| b. | With a neat diagram, explain the steps in handling page fault. | 10 |
| 8 a. | Define fragmentation. Explain the types of fragmentation. | 6 |
| b. | With an example, explain the concept of shared pages. | 8 |
| c. | Explain first fit, best fit and worst fit with respect to memory management. | 6 |

UNIT - V

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|-------|--|----|
| 9 a. | List and explain different file operations and file attributes. | 10 |
| b. | Explain different disk space allocation methods. | 10 |
| 10 a. | Explain different directory structures. | 10 |
| b. | List different Disk scheduling algorithms and explain any two with an example. | 10 |