


 U.S.N

--	--	--	--	--	--	--	--	--	--

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

(An Autonomous Institution affiliated to VTU, Belagavi)

Seventh Semester, B.E. - Electronics and Communication Engineering

Semester End Examination; Dec - 2017 / Jan - 2018

Operating System

Time: 3 hrs

Max. Marks: 100

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

UNIT - I

- | | | | |
|---|----|---|----|
| 1 | a. | Draw the computer hardware and software structure of operating system and discuss various functions. | 10 |
| | b. | Discuss briefly Time Sharing Systems and Multiprogramming operating system. | 10 |
| 2 | a. | What is the importance of state-transition diagram? With the help of state transition diagram, discuss the various process states. | 10 |
| | b. | Discuss some reasons, why we use Threads in designing operating system? Explain single and multi thread process and user and Kernel level thread. List the advantages and disadvantages of threads over multiple processes. | 10 |

UNIT - II

- | | | | |
|---|----|--|----|
| 3 | a. | What is the necessity of semaphore? Briefly discuss Binary and count semaphore. | 10 |
| | b. | What is the use of Mutual Exclusion in operating system? What is meant by hardware and software exclusion? Briefly discuss Peterson's algorithm. | 10 |
| 4 | a. | List out what are the reasons for occurrence of Deadlocks? Explain any two methods in handling a deadlock. | 10 |
| | b. | Explain how "Dining Philosophers problem" brings out the needs for synchronization and avoids deadlocks. | 10 |

UNIT - III

- | | | | |
|---|----|--|----|
| 5 | a. | List various page replacement algorithms and briefly discuss any two among them. | 10 |
| | b. | Draw the tree representation of Buddy system and explain in detail with an example. | 10 |
| 6 | a. | Explain the need for fragmentation and differentiate between internal and external fragmentation. | 10 |
| | b. | Consider a paging system with a sample space of 1 MB physical storage where virtual and physical address in each 20 bits long. The page size is assumed to be 256 bytes. What will be the frame size of the physical memory? Show how mapping of user's view of memory into physical memory is done? | 10 |

Contd...2

UNIT - IV

- 7 a. Discuss the following terms :
- | | | | |
|--------------------|----------------------------|-----------------------|----|
| i) Seek time | ii) Rotational latency | iii) Rotational delay | 10 |
| iv) Disk Bandwidth | v) Total capacity of disk. | | |
- b. Explain the concept of RAID with a help of schematic diagram. 10
- 8 a. Describe briefly the file attributes and file operation. 10
- b. Describe file directories and discuss briefly single level, two level and three level directories. 10

UNIT - V

- 9 a. What do you mean by security attacks and who is an intruder? Discuss briefly two common forms of computer security attacks. 10
- b. Define Virus. Explain its structure and behavior. 10
- 10 a. Define Authentication and compare three methods. 10
- b. Write a short notes on :
- | | | |
|------------------------|----------------------|----|
| i) Intrusion detection | ii) Malware defense. | 10 |
|------------------------|----------------------|----|

* * *