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P.E.S. College of Engineering, Mandya - 571 401
(An Autonomous Institution affiliated to VTU, Belagavi)
Fifth Semester, B.E. - Electronics and Communication Engineering
Semester End Examination; Dec. - 2019
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 layered view of OS and explain the same.	5
b.	Draw the diagram of 3-state process model. List the events that cause process to enter and exit from each block.	10
c.	An airline reservation system using centralized database services, where user requests arrive concurrently. As a consultant, you are to suggest usage of either process or threads. Justify your selection.	5
2 a.	With respect to evolution of OS, distinguish between batch processing and multiprogramming.	5
b.	List the steps in process creation.	10
c.	What is a thread? List two differences between user level and kernel level threads.	5

UNIT - II

3 a.	Under what conditions deadlock occurs? Illustrate with example.	5
b.	With algorithm, show how binary semaphore can be used for mutual exclusion?	10
c.	With respect to message passing, distinguish between blocking send/receive and non-blocking send/receive.	5
4 a.	When does a race condition occur? Show with an example.	5
b.	With an algorithm, show how counting semaphore can be used for mutual exclusion?	10
c.	What is deadlock prevention? How can no preemption and circular wait can prevent deadlock?	5

UNIT - III

5 a.	Describe strength and weakness of fixed and dynamic partitioning.	12
b.	With a neat diagram, explain address translation method of paging system.	8
6 a.	Compare two characteristics of paging and segmentation for both simple and virtual paging/segmentation.	12
b.	With necessary algorithm and diagrams, explain how buddy system (algorithm) works.	8

UNIT – IV

7 a.	Explain logical structure of the I/O function model of I/O (Input-output) organization.	10
b.	With a diagram, explain file system software architecture.	6
c.	What are the objectives of files and file systems.	4

8 a.	Explain the concept of RAID.	10
b.	With reference to information elements of a file/directory, explain basic and address information.	5
c.	What is file sharing? Why is it needed? What precaution (s) should be taken to share a file?	5

UNIT - V

9 a.	Explain four types of malicious software.	8
b.	For a computer system assets, explain security and integrity parts of software.	4
c.	What is passive attack? Describe two types of passive attacks.	8
10 a.	Explain four types of security threats.	8
b.	What are active attacks? Describe two types of active attacks.	8
c.	Differentiate between Virus and Worm.	4

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