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10EC65

**Sixth Semester B.E. Degree Examination, Jan./Feb. 2021**  
**Operating Systems**

Time: 3 hrs.

Max. Marks:100

**Note:** Answer any FIVE full questions, selecting at least TWO full questions from each part.

**PART - A**

- 1 a. Explain the goals of an operating systems. (04 Marks)  
b. Write short notes on:  
i) Resource allocation and related functions  
ii) User interface related functions. (08 Marks)  
c. Explain time shared operating system with respect to  
i) Scheduling ii) Memory management. (08 Marks)
- 2 a. What are the functions of an operating system? Explain. (04 Marks)  
b. Compare Kernel based and micro Kernel based operating system. (08 Marks)  
c. Explain Virtual Machine operating system. What are the advantages of using virtual machines? (08 Marks)
- 3 a. Write short notes on:  
i) Programmer view of processes  
ii) OS view of a processes (12 Marks)  
b. Write short notes on: i) Processes in unix ii) Threads in solaris. (08 Marks)
- 4 a. Compare contiguous and noncontiguous memory allocation. (04 Marks)  
b. Explain:  
i) Lazy buddy allocator in unix  
ii) Memory compaction slab allocator of Solaris 2.4 system. (10 Marks)  
c. Explain internal fragmentation and external fragmentation with examples. (06 Marks)

**PART - B**

- 5 a. Write explanatory notes on: i) Virtual memory in unix ii) Demand paging. (12 Marks)  
b. For given reference string 7, 0, 1, 2, 0, 3, 0, 4, 2, 3, 0, 3, 2, 1, 2, 0, 1, 7, 0, 1 and for memory with 3 frames. Calculate the number of page faults for FIFO, optimal and LRU page replacement algorithms. (08 Marks)
- 6 a. Compare and contrast sequential, direct and index file organization, with examples. (12 Marks)  
b. Describe the interface between file and IOCS. (08 Marks)
- 7 a. Explain the terms long term, short term and medium term scheduling. (06 Marks)  
b. Write short notes on: i) Real time scheduling ii) Process scheduling in unix. (14 Marks)
- 8 Write short notes on:  
a. Implementing message passing (08 Marks)  
b. Mail boxes (06 Marks)  
c. Inter process communication in unix. (06 Marks)

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Important Note : 1. On completing your answers, compulsorily draw diagonal cross lines on the remaining blank pages.  
2. Any revealing of identification, appeal to evaluator and /or equations written eg, 42+8 = 50, will be treated as malpractice.