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Sixth Semester B.E. Degree Examination, Dec.2014/Jan.2015
Operating Systems

Time: 3 hrs.

Max. Marks:100

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

PART – A

- 1 a. What is O.S.? What are the common tasks performed by O.S. and when they are performed? (07 Marks)
- b. Explain turn around time in batch processing system. (06 Marks)
- c. Define distributed system. Give the key concepts and techniques used in distributed O.S. (07 Marks)
- 2 a. Explain with basic structure used for system generation in configuring and installing supervisor. (07 Marks)
- b. Explain with a figure the working of a two layered O.S. structure. (06 Marks)
- c. With a neat diagram explain the working of a microkernel based O.S. (07 Marks)
- 3 a. Define a process. List the different fields of a process control block. (06 Marks)
- b. Explain the four fundamental states of a process with state transition diagram. (07 Marks)
- c. What are the advantages of threads over process? Explain kernel level threads. (07 Marks)
- 4 a. Explain the working of a buddy system allocator. (06 Marks)
- b. Give the comparison of contiguous and non-contiguous memory allocation. (06 Marks)
- c. Explain first fit and best fit technique used to perform a fresh allocation from a free list. (08 Marks)

PART – B

- 5 a. Explain what are the functions performed by paging hardware. (06 Marks)
- b. What are the functions performed by VM handler? Give the data structures of VM handler. (06 Marks)
- c. Consider the page reference string 5, 4, 3, 2, 1, 4, 3, 5, 4, 3, 2, 1, 5. How many page faults would occur for the following page replacement policies assuming 3 frames?
i) FIFO ii) LRU (08 Marks)
- 6 a. What are the facilities provided by the file system and the input-output control system? (06 Marks)
- b. With a figure explain the working of a linked allocation of disk space. (07 Marks)
- c. Explain the interface between file system and IOCS. (07 Marks)
- 7 a. With diagram explain the working of a long, medium and short term scheduling in a time sharing system. (10 Marks)
- b. For the following given process for scheduling.

Process	P ₁	P ₂	P ₃	P ₄	P ₅
Admission time	0	2	3	4	8
Service time	3	3	5	2	3

Calculate mean turn around time and mean weighted turn around for the (i) FCFS scheduling (ii) Round-Robin scheduling with time slicing (δ) for 1 second. (10 Marks)

- 8 a. Explain the primary issues in implementing message passing. (06 Marks)
- b. Explain the working of a blocking and non-blocking delivery protocols. (07 Marks)
- c. Explain mailboxes. Give the advantages of mailboxes. (07 Marks)

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