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10EC65

Sixth Semester B.E. Degree Examination, Dec.2019/Jan.2020
Operating Systems

Time: 3 hrs. Max. Marks:100

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

PART – A

1 a. What is OS? What are the common tasks performed by OS and when they are performed? **(06 Marks)**

b. Why are I/O bound programs given higher priorities in a multiprogramming environment illustrate with timing diagram? **(08 Marks)**

c. Explain partition based and pool based resource allocation strategies. **(06 Marks)**

2 a. With a neat diagram, explain the Kernal based OS structure. **(08 Marks)**

b. Explain with a figure the working of a two layered OS structure. **(08 Marks)**

c. What are the functions of an OS? Explain briefly. **(04 Marks)**

3 a. What are the advantages of threads over processes? **(03 Marks)**

b. Explain four fundamental states of process with state transition diagram. **(10 Marks)**

c. Explain with neat diagram user-level threads. **(07 Marks)**

4 a. Describe static and dynamic memory allocation. **(05 Marks)**

b. Explain first fit and best fit technique used to perform a fresh allocation from a free list. **(10 Marks)**

c. Compare contiguous and non-contiguous memory allocation. **(05 Marks)**

PART – B

5 a. Explain functions performed by paging hardware. **(06 Marks)**

b. Explain "page out daemon" for handling virtual memory in UNIX OS. **(04 Marks)**

c. Find the number of page faults for the following page reference string using FIFO and LRU page replacement policies assuming 3 frames.
Reference string: 5, 4, 3, 2, 1, 4, 3, 5, 4, 3, 2, 1, 5 **(10 Marks)**

6 a. With the help of a neat diagram, explain the working of a linked allocation of a disk space. **(08 Marks)**

b. Compare the sequential and direct file organization. **(04 Marks)**

c. Explain the interface between file system and IOCS. **(08 Marks)**

7 a. What are the functions of medium and short term schedulers? **(04 Marks)**

b. Compare preemptive and non preemptive scheduling. **(04 Marks)**

c. Describe the shortest request next (SRN) scheduling policy. Determine the average turnaround time and weighted turnaround time for the following set of processes shown below: **(12 Marks)**

Processes	P_1	P_2	P_3	P_4	P_5
Arrival time	0	2	3	4	8
Service time	3	3	5	2	3

8 a. Explain: (i) Direct and indirect naming (ii) Blocking and non blocking sends **(06 Marks)**

b. Describe buffering of interprocess messages. **(08 Marks)**

c. Write short notes on mailbox. **(06 Marks)**

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