(08 Marks)



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 l	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.
 - c. Compare contiguous and non-contiguous memory allocation. (10 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.
 - 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:

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)