USN | | | | | | | | | | | | 10EC65

Sixth Semester B.E. Degree Examination, June/July 2019
Operating Systems

Time: 3 hrs. Max. Marks:100

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

PART - A

1 a. Define an Operating System. What are the different facts of user convenience? (06 Marks)
   b. Explain Partition based and pool based resource allocation. (06 Marks)
   c. Explain time sharing operating system with respect to :
      i) Scheduling   ii) Memory Management. (08 Marks)

2 a. Explain the following :
      i) Semantic gap   ii) Layered operating system structure. (08 Marks)
   b. Compare Kernel based and Micro Kernel based OS functions. (06 Marks)
   c. Explain Virtual Machine Operating System [VMOS] with example. (06 Marks)

3 a. In some situations a change in the state of one process may cause a change in the state of another process. Describe all such situations. (08 Marks)
   b. An application is to be coded using threads. Describe conditions under which you would recommend use of i) Kernel level threads   ii) User level threads. (06 Marks)
   c. Explain the different status of process in UNIX OS with diagram. (06 Marks)

4 a. Explain the working of a buddy system allocator. (06 Marks)
   b. Define Boundary tag. Explain merging of free areas using boundary tags. (08 Marks)
   c. Compare contiguous and non – contiguous memory allocation. (06 Marks)

PART - B

5 a. Consider the page reference string 5, 4, 3, 2, 1, 4, 3, 5, 4, 3, 2, 1, 5. How many page faults would access for the following page replacement policies assuming 3 frames?
      i) FIFO   ii) LRU. (08 Marks)
   b. Explain the important concept in the operation of demand paging. (12 Marks)

6 a. Explain the organisation of sequential access and direct access files. (08 Marks)
   b. Describe the interface between file system and IOCS. (08 Marks)
   c. Describe file system actions during a file operation. (04 Marks)

7 a. With diagram explain the working of a long, medium and short term scheduling in a time sharing system. (10 Marks)
   b. Describe the shortest request next [SRN] and highest response next [HRN] scheduling policies and determine the average turn around time and weighted turn around time for the following set of process shown in the below table. (10 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. What is Mail box? Explain features and advantages. (08 Marks)
   b. Explain the Primary issues in implementing message passing. (06 Marks)
   c. Explain the Inter – process communication mechanisms in Unix OS. (06 Marks)

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