Sixth Semester B.E. Degree Examination, Aug./Sept.2020
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. Briefly explain the different classes of operating systems. Specifying the primary concern and key concepts used. **(10 Marks)**
   b. What are common tasks performed by operating system? Explain briefly. **(06 Marks)**
   c. Explain two types of resource allocation. **(04 Marks)**

2 a. Discuss operating systems with monolithic structure and the multiprogramming systems. **(10 Marks)**
   b. Explain Kernel based and Microkernel based operating system. **(10 Marks)**

3 a. What is thread? Explain the implementation of Kernel-level thread and User-level thread. **(10 Marks)**
   b. Explain process states and state transition in Unix. **(06 Marks)**
   c. Discus the advantages of child processes. **(04 Marks)**

4 a. Differentiate between :
      (i) Static and dynamic memory allocation.
      (ii) First fit and Best fit free space allocation **(08 Marks)**
   b. Explain merging of free areas using boundary tags. **(08 Marks)**
   c. Compare contiguous and non-contiguous memory allocation. **(04 Marks)**

PART – B

5 a. Explain demand loading of pages. **(08 Marks)**
   b. For the following page reference string, calculate the number of page faults with LRU when
      (i) Number of Page frames are three
      (ii) Number of Page frames are four.
      Page reference string : 5, 4, 3, 2, 1, 4, 3, 5, 4, 3, 2, 1, 5. **(06 Marks)**
   c. Explain address translation in paged virtual memory. **(06 Marks)**

6 a. Explain the organization of sequential access and direct access files. **(08 Marks)**
   b. Explain the different operations performed on files. **(04 Marks)**
   c. With a neat diagram, explain the facilities provided by file system and IOCS layers. **(08 Marks)**

7 a. Compute mean turn around time and weighted turn around time for following set of processes, using FCFS scheduling:

Processes	P₁	P₂	P₃	P₄	P₅
Arrival time	0	2	3	5	9
Service time	3	3	2	5	3

(06 Marks)
   b. Explain Scheduling in Unix. **(08 Marks)**
   c. Explain the long term, medium term and short term scheduler. **(06 Marks)**

8 a. Explain (i) direct and indirect naming (ii) blocking and nonblocking sends **(06 Marks)**
   b. Write short note on mail box and mention its advantages. **(08 Marks)**
   c. With a neat diagram, explain Inter Process Communication in Unix. **(06 Marks)**

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