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10EC65

### 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. Discuss the advantages of child processes. (04 Marks)
- 4 a. Differentiate between :
  - (i) Static and dynamic memory allocation. (08 Marks)
  - (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	P <sub>1</sub>	P <sub>2</sub>	P <sub>3</sub>	P <sub>4</sub>	P <sub>5</sub>
Arrival time	0	2	3	5	9
Service time	3	3	2	5	3

- b. Explain Scheduling in Unix. (06 Marks)
- c. Explain the long term, medium term and short term scheduler. (08 Marks)
- (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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Important Note : 1. On completing your answers, compulsorily draw diagonal cross lines on the remaining blank pages.  
2. Any revealing of identification, appeal to evaluator and /or equations written eg, 42+8 = 50, will be treated as malpractice.