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BCACAC 211

III Semester B.C.A. Degree Examination, October/November 2019

(Credit Based Semester Scheme)

(Common to All Batches)

Operating System

Time : 3 Hours]

[Max. Marks : 80

Note : Answer any TEN questions from Part-A and ONE full question from each Unit of Part-B.

Shri Dharmasthala Manjunatheshwara
College of Business Management Library
MANGALORE - 575 003

PART - A

1. Answer **any ten** of the following :

(10 × 2 = 20)

- Distinguish a program and process.
- Define PCB. Mention the components of PCB.
- Define the terms throughput and response time.
- What is Semaphore?
- Define Deadlock.
- Define the term 'Max' and 'Need' in Banker's algorithm.
- Differentiate logical address space and physical address space.
- List out any four file types with extensions.
- Give the difference between absolute path name and relative path name.
- What is the purpose of chmod command in Linux? Give example.
- What is the purpose of pipe command in Linux? Give example.
- Name any two directory oriented commands in Linux.



PART - B

UNIT - I

Answer **any four** questions, choosing one full question from each Unit.

2. (a) Explain real time systems and batch process systems.
 (b) Explain FCFS scheduling with an example.
 (c) Briefly explain co-operating process. **(6 + 5 + 4)**
3. (a) Explain the services provided by operating system.
 (b) Consider the following set of processes that arrive at time 0, with the length of the CPU-burst time given in milliseconds.

Process	Burst time
P1	6
P2	8
P3	7
P4	3

Draw Gantt chart and find average waiting time and turn around time using SJF scheduling.

- (c) Explain the life cycle of a process with a neat diagram. **(5 + 5 + 5)**

UNIT - II

4. (a) Explain Bankers algorithm.
 (b) Write the classical definition of wait and signal in pseudo code.
 (c) List and explain necessary and sufficient conditions for deadlock. **(6 + 4 + 5)**
5. (a) What is critical section? What are the requirements for a solution to critical section problem?
 (b) Explain resource - allocation graph with an example.
 (c) Explain the deadlock detection algorithm for single instance of resource. **(5 + 6 + 4)**



UNIT - III

6. (a) Explain the concept of swapping with a neat diagram.
(b) Explain FIFO page replacement algorithm with an example.
(c) Briefly explain direct and sequential access of files. (4 + 5 + 6)
7. (a) Explain the concept of paging with an example.
(b) Explain any five operations on files.
(c) Consider the following page reference string
7, 0, 1, 2, 0, 3, 0, 4, 2, 3, 0, 3, 2, 1, 2, 0, 1, 7, 0, 1
How many page faults would occur for the following replacement algorithm, assuming three frames?
(i) LRU algorithm
(ii) Optimal Page Replacement Algorithm. (4 + 5 + 6)

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College of Business Management &
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UNIT - IV

8. (a) Explain the features of Unix operating system.
(b) Explain the case statement in Linux with an example.
(c) Explain any five process oriented commands available in Linux. (5 + 5 + 5)
9. (a) Explain the Linux file system with a neat diagram.
(b) Write short notes on Shell Meta characters.
(c) Explain any five general purpose commands. (5 + 5 + 5)
