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BCACAC 211

Credit Based Third Semester B.C.A. Degree Examination, Oct./Nov. 2013
(New Syllabus) (2013-14 Batch)
OPERATING SYSTEM

Time : 3 Hours

Max. Marks : 80

Note : Answer **any ten** questions from **Part A** and answer **one full** question from **each Unit of Part B.**

PART - A

(10×2=20)

1. a) Distinguish between a program and process.
- b) List out the four process states.
- c) Define PCB. Mention the components of PCB.
- d) Define deadlock.
- e) What are semaphores ?
- f) Define wait-for graph.
- g) Differentiate logical address over physical address.
- h) Define virtual memory.
- i) Mention any four file extensions.
- j) What is the purpose of ls command in Linux ?
- k) Define a kernel.
- l) What is the purpose of break command in Linux ?

PART - B

UNIT - I

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)

P.T.O.



3. a) List the advantages of time sharing systems over multiprogramming 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 using SJF scheduling.

- c) Compare and contrast thread and process. (5+5+5)

UNIT – II

4. a) Explain the data structures involved in bankers algorithm.
 b) Write the classical definition of wait and signal in pseudo code.
 c) List and explain necessary and sufficient conditions for deadlock. (4+5+6)
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) Write a short note on safe state. (5+6+4)

UNIT – III

6. a) With a neat diagram explain dynamic relocation using relocation register.
 b) Explain LRU page replacement algorithm with an example.
 c) Briefly explain direct and sequential access of files. (4+5+6)



- 7. a) With an example explain paging.
- b) Write short note on access controls of a file.
- 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 replacement algorithm. (4+4+7)

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UNIT – IV

- 8. a) Explain the features of Unix operating system.
 - b) Explain the various conditional control statements available in Linux.
 - c) Explain the various replace commands available in Linux. (5+6+4)
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- 9. a) Explain the Linux file system with a neat diagram.
 - b) Write short notes on Shell meta characters.
 - c) Explain the various screen commands in Linux. (5+5+5)
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