Reg. No. ☐☐☐☐☐☐☐☐☐

BCACAC 211

Credit Based Third Semester B.C.A. Degree
Examination, October/November 2016
(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**.*

PART – A

1. a) Distinguish between a program and process.　　　　　　　**(10×2=20)**

   b) List out the four process states.

   c) Define PCB.

   d) Define deadlock.

   e) What are semaphores ?

   f) Define wait-for graph.

   g) Differentiate between logical address and physical address.

   h) Define virtual memory.

   i) Mention any four types of file extensions.

   j) What is the purpose of cat command in Linux ?

   k) Define a kernel.

   l) What is the purpose of break command in Linux ?

PART – B

UNIT – I

2. a) Explain batch process systems and real time systems.

   b) Explain FCFS scheduling with an example.

   c) Briefly explain co-operating process.　　　　　　　　　　**(6+5+4)**

P.T.O.

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
P_1	6
P_2	8
P_3	7
P_4	3

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

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

UNIT – II

4. a) Explain dining philosophers' problem.

   b) Explain the concept of semaphores with pseudo code for wait and signal.

   c) List and explain necessary and sufficient condition for deadlock to occur.   (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) 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 replacement algorithm.   **(4+5+6)**

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) Explain the any two iterative statements in Linux with example.

   c) Explain any five file oriented commands in Linux.   **(5+5+5)**