Reg. No. ☐☐☐☐☐☐☐☐

**BCACAC 211**

### Credit Based Third Semester B.C.A. Degree Examination, November/December 2015
### (New Syllabus) (2013-14 Batch Onwards)
### 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

(10×2=20)

1. a) Define time sharing processing system.

   b) What do you mean by a dispatcher ?

   c) Define PCB.

   d) What do you mean by non-pre-emptive CPU scheduling ?

   e) Define turnaround time and response time.

   f) Define deadlock.

   g) List the various methods to recover from deadlock.

   h) List the requirements for obtaining a solution to critical section problem.

   i) What is the difference between absolute path and relative path ?

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

   k) List any two directory commands of Linux with syntax.

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

### PART – B
#### Unit – I

2. a) What is an operating system ? Explain any two types of operating systems.

   b) List any five differences between thread and process.

   c) Explain the concept of process scheduling using queuing diagram.    (5+5+5)

**P.T.O.**

3. a) Explain any five services of an OS.

   b) Explain the various criteria for CPU scheduling.

   c) 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.    **(5+5+5)**

### Unit – II

4. a) Explain the two process solution to a critical section problem.

   b) Explain the necessary conditions for deadlock to occur in a system.

   c) Explain wait-for graph with an example.    **(5+5+5)**

5. a) Explain Readers-Writers Problem as a classical problem of synchronization.

   b) Explain resource allocation graph with an example.

   c) Explain binary semaphores with pseudo code of wait and signal.    **(5+5+5)**

### Unit – III

6. a) Explain the concept of swapping with a neat diagram.

   b) Consider the following reference string. Assuming three frames find the number of page faults using FIFO page replacement algorithm.

      7, 0, 1, 2, 0, 3, 0, 4, 2, 3, 0, 3, 2, 1, 2, 0, 1, 7, 0, 1

   c) Write a short note on indexed allocation method.    **(5+5+5)**

7.  a) Explain the concept of segmentation with a neat diagram.

    b) Explain LRU page replacement algorithm with an example.

    c) Explain grouping and counting in free space management.          (5+5+5)

## Unit – IV

8.  a) Explain the various types of shells available in Unix.

    b) Explain any five directory oriented commands in Linux.

    c) Write a note on positional parameters.          (5+5+5)

9.  a) Explain the Unix file system.

    b) Explain the case statement in Linux with syntax and example.

    c) Write a note on pattern matching characters available in Linux.          (5+5+5)

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