

Reg. No.

--	--	--	--	--	--	--	--	--	--



**BCACAC 211**

**Credit Based Third Semester B.C.A. Degree Examination, Oct./Nov. 2014  
(New Syllabus) (2013-14 Batch Onwards)  
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**

**(10x2=20)**

1. a) Define the different types of real time systems.
- b) Define PCB. Mention the components of PCB.
- c) Define the terms throughput and response time.
- d) What is a critical section ? Name the requirements for solution to the critical section problem.
- e) Name the methods to recover from deadlock.
- f) Define the terms 'Max' and 'Need' in Banker's algorithm.
- g) Differentiate logical address space and physical address space.
- h) List out any four file types with extensions.
- i) Give the difference between absolute path name and relative path name.
- j) What is the purpose of cp command in Linux ? Give example.
- k) What is the purpose of shift command in Linux ?
- l) Name any two directory oriented commands in Linux.

**PART – B**

**UNIT – I**

2. a) Explain any five services of operating system.
- b) Define and explain the benefits of threads.
- c) With a neat diagram explain process scheduling using queuing diagram. **(5+4+6)**

P.T.O.



3. a) Write a note on process management and file management.  
 b) Explain process state transition with a neat diagram.  
 c) Discuss FCFS and SJF CPU scheduling policies with example and also compare the same. (5+5+5)

## UNIT – II

4. a) What is readers-writers problem ? Explain.  
 b) Explain the necessary conditions for deadlocks to occur in a system.  
 c) Consider the following snapshot of a system : (5+4+6)

	Allocation	Max	Available
	A B C D	A B C D	A B C D
P0	0 0 1 2	0 0 1 2	1 5 2 0
P1	1 0 0 0	1 7 5 0	
P2	1 3 5 4	2 3 5 6	
P3	0 6 3 2	0 6 5 2	
P4	0 0 1 4	0 6 5 6	

Answer the following using Banker's algorithm.

- 1) Is the system in a safe state ?  
 2) If a request from process P1 arrives for (0, 3, 2, 1) can the request be granted immediately ?
5. a) Explain the concept of semaphores in process synchronization.  
 b) Explain the deadlock avoidance methods.  
 c) How can you detect deadlock using 'wait-for' graph ? Explain. (4+6+5)

## UNIT – III

6. a) Explain swapping method with a diagram.  
 b) Explain LRU page replacement algorithm with an example.  
 c) Explain the concept of equal and proportional allocation of frames in memory management. (5+5+5)



- 7. a) Explain demand paging with a diagram.
- b) Given 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  
With 3 frames of memory write the steps for FIFO page replacement algorithm which shows the occurrence of page faults and find the number of page faults.
- c) Explain any five file operations. (5+5+5)

UNIT – IV

- 8. a) Explain the different file permissions in Linux. What does -rw-r-r- -file1 mean for the file file1 ?
- b) Explain the case statement with syntax and example.
- c) What are the different options of 'cat' command ? Give examples. (5+6+4)
- 9. a) Explain the following commands :
  - i) grep
  - ii) chmod
- b) Write a note on positional parameters.
- c) Write a note on different modes of vi editor. (4+5+6)