CHRIST UNIVERSITY,BENGALURU - 560029

End Semester Examination March - 2016

Bachelor of Computer Applications II SEMESTER

Code: BCA234 **Max.Marks: 100**

Subject: OPERATING SYSTEMS **Duration: 3Hrs**

SECTION A

Answer ALL the questions **10X2=20**

1 What is the difference between a command line interface and graphical user interface?

2 List two events that may take a process to a ready state.

3 What is Preemption? What are the advantages of it?

4 What is a Gantt chart?

5 Define Process Synchronization.

6 Mention the necessary and sufficient conditions for a deadlock.

7 What is a safe state? How do you ensure it?

8 Differentiate between logical and physical addresses.

9 What is Page Replacement?

10 What are the different types of files?

SECTION B

Answer any FIVE questions. **5X6=30**

11 Write a short note on Microkernel.

12 What is the use of a Process Control Block? Illustrate.

13 Write a short note on multilevel feedback queue with their parameters.

14 What is a Critical Section? What three conditions must be satisfied in order to solve the critical section problem?

15 Consider the following snapshot of a system:

	Allocation	Max	Available
	A B	*A B*	*A B*
P_0	1 0	3 2	3 4
P_1	0 3	3 5	
P_2	2 4	2 7	
P_3	3 0	5 5	
P_4	4 2	6 2	

Using the banker's algorithm, determine if the system is in safe state. Explain your answer.

16 Explain single and multiple Partitioning Schemes in memory management.

17 What are the various kinds of performance overhead associated with servicing an interrupt?

SECTION C

Answer any FIVE questions. **5X10=50**

18 Explain System Calls in Process Control and File Management.

19 Define preemption and non-preemption. Discuss the scenarios when these concepts hold good and bad for the process.

20 Consider the following set of processes, with the estimated CPU burst given in milliseconds and 1 refers to the higher priority. Draw four Gantt charts for the following scheduling algorithms: non-preemptive SJF; non-preemptive priority; RR (quantum=1); RR (quantum=2). Tabulate the turnaround time and the waiting time.

Process	P1	P2	P3	P4	P5
Priority	3	1	3	4	2
CPU					

burst	10	1	2	1	5

21 State Producer consumer problem and explain the solution for it using Semaphores.

22 Write a short note on the following. (a) Safety algorithm (b) Resource request algorithm pertaining to deadlock avoidance.

23 Calculate the number of page faults using Optimal Replacement algorithm for the given reference string (Number of frames = 3)

3, 2, 3, 0, 8, 4, 2, 5, 0, 9, 8, 3, 2, 3, 2, 3, 0

24 Explain the different directory structures in Operating Systems.