CHRIST (DEEMED TO BE UNIVERSITY),BENGALURU - 560029

End Semester Examination March - 2018

Bachelor of Computer Applications II SEMESTER

Code: BCA233 **Max.Marks: 100**

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

SECTION A

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

1 Mention any four activities carried out by the Operating System as part of Process Management.

2 Differentiate between user mode and kernel mode operations.

3 How does OS perform context switch?

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

5 What is the difference between counting semaphore and binary semaphore?

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

7 What is the purpose of Memory Management Unit?

8 Briefly explain the relevance of protection bits in a paging environment.

9 Define File-Allocation Table (FAT).

10 What is device driver?

SECTION B

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

11 Briefly discuss the concept of Time shared Operating Systems. How does it differ from multi-programmed Operating systems?

12 Compare and contrast system calls and library functions.

13 Discuss the purpose of the following: a) Job Queue b) Ready Queue c) Device Queue , with respect to a process.

14 Briefly explain the two models of Inter Process Communication.

15 What is Process Synchronization? Explain the need for the same.

16 Explain segmentation architecture.

17 Compare different block allocation methods based on performance.

SECTION C

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

18 What are the different steps involved in creating a process from a program written in high level language? Explain.

19 Explain operations on process in detail.

20 Compare the average waiting time, response time and turn around times using FCFS and pre-emptive SJF for the following data.

Process	P1	P2	P3	P4
Arrival	0	6	3	4
CPU burst	6	4	3	1

21 State dining philosophers problem and explain the solution for it using Semaphores.

22 What is deadlock avoidance? How is resource allocation graph algorithm used to avoid deadlock? Explain with an example.

23 Given memory partitions of 100 KB, 500 KB, 200 KB, 300 KB, and 600 KB (in order), how would each of the first-fit, best-fit, and worst-fit algorithms place processes of 212 KB, 417 KB, 112 KB, and 426 KB (in order)? Which algorithm makes the most efficient use of memory?

24 Explain FCFS and SCAN disk scheduling algorithms.