# CHRIST UNIVERSITY,BENGALURU - 560029

**End Semester Examination March - 2017**

**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** What are the five major activities of an Operating System with regard to file Management?

**2** What is a PCB?

**3** Explain the main differences between a short-term and long-term scheduler.

**4** What is a Gantt chart?

**5** Define Process Synchronization.

**6** Define a) Request Edge b) Assignment Edge c) Claim Edge.

**7** Mention two methods of deadlock recovery.

**8** Differentiate between logical and physical addresses.

**9** What is PTLR?

**10** Define File-Allocation Table (FAT).

## SECTION B

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

**11** Explain the concept of multi programming with regard to operating systems and discuss the benefit of the same.

**12** Illustrate the purpose of a process control block.

**13** Explain Multilevel Queues in process scheduling.

**14** What is Process Synchronization? Explain the need for the same.

**15** Consider a system with 3 resource types X, Y, Z having 5 units each. Given the following information, which process will finish last and what will be the safe sequence?

| | Allocation | Need |
|---|---|---|
| | *A B C* | *A B C* |
| $P_0$ | 1 2 1 | 1 0 3 |
| $P_1$ | 2 0 1 | 0 1 2 |
| $P_2$ | 2 2 1 | 1 2 0 |

**16** Write short notes on Segmentation.

**17** Discuss in breif the Unix I/O Kernel structure.

## SECTION C

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

**18** Give a diagrammatic representation of the four components of a computer system. Explain each of the components in detail.

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

**20** Calculate average waiting time, and turn around times using Round robin scheduling with a time quantum of 22 ms.

| Process | P1 | P2 | P3 | P4 | P5 | P6 |
|---|---|---|---|---|---|---|
| CPU burst | 33 | 18 | 59 | 26 | 16 | 22 |

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

**22** What factors influence the decision of when to invoke a detection algorithm?

Explain in detail.

**23** Explain in detail, the concept of a) shared pages b) hashed page tables.

**24** Explain the different directory structures in Operating Systems.