

Roll Number: _____

Thapar University Patiala
Computer Science & Engineering Department

B.E. C.S.E. Special Auxiliary Examination
2nd September 2017

UCS303: Operating System

Maximum Marks: 100

Name of Faculty: Vinay Arora

Time: 3 Hrs.

Note: All Questions are Compulsory; Attempt in a **SEQUENTIAL ORDER**; Draw diagrams to support the explanation.

- Q.1** Increase in the degree/frequency of multitasking can be considered as an overhead for operating system. (10)
Explain with diagram.
- Q.2** System call provide the means for a user program to ask the operating system to perform tasks reserved (10) for the operating system on the user program's behalf. Explain using diagram the transition from user to kernel mode & vice versa while executing the system call.
- Q.3** Consider the set of processes where processes are arrived in the order P1, P2, P3, P4 all at time t_0 . (10)

Process	Burst Time (milliseconds)	Priority
P1	20	2
P2	2	1
P3	4	2
P4	2	3

- a. Find the total number of **context switches** present in Non Preemptive Priority & RR scheduling (Time Slice=2). Diagram Required.
- b. When the behavior of RR scheduling become equivalent to FCFS. Explain. In above mentioned case find out the time quantum when RR & FCFS will be equivalent.
- Q.4** a. Give the difference between Long Term Scheduler & Short Term Scheduler. (10)
- b. Discriminate between Turnaround Time & Waiting Time.
- Q.5** What is the purpose of system program? (10)
- Q.6** List the various File allocation methods. (10)
- Q.7** What is the purpose of paging the page table? Explain inverted page table with diagram. (10)
- Q.8** Suppose that a disk drive has cylinders numbered 0 to 180. The drive is currently serving a request at cylinder 60, and the previous request was at cylinder 55. The queue of pending requests, in FIFO order is: 87, 170, 40, 150, 36, 72, 66, 15.
- Starting from the current head position, what is the total distance (in cylinders) that the disk arm moves to satisfy all the pending requests using C-SCAN and FCFS disk scheduling algorithm. (Diagram Required)
- Q.9** What is the difference between Time Sharing & Real Time systems? (10)
- Q.10** Categorize the files into various groups on the basis of extension: (10)
- .c, .bat, .txt, .rtf, .dll, .java, .sh, .doc, .lib