

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

Time: 3 Hrs.

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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 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. (10)
- 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. (10)

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