

Sem VI / CBGS / EXTC / O.S / NOV-16 / 20-12-16
Operating System.

QP Code : 588700

(3 Hours)

[Total Marks : 80



- N.B. :**
- (1) Question No.1 is **compulsory**.
 - (2) Attempt **any three** questions out of remaining **five** questions.
 - (3) Assume suitable data whenever required but justify the same.
 - (4) Assumption made should be clearly stated.

1. (a) What is an operating system? Explain the different functions of OS. 5
(b) What is a file directory? Describe methods of organizing directories in an OS. 5
(c) What are the characteristics of a Real Time OS? 5
(d) What is system call? Explain any five system calls. 5
2. (a) Define the meaning of a race condition, use an execution sequence to illustrate your answer. 10
(b) Explain clearly how UNIX performs file management using I-nodes. 10
3. (a) Suppose that a disk drive has 5000 cylinders, numbered 0 to 4999. The drive is currently serving a request at cylinder 143, and the previous request was at cylinder 125. The queue of pending requests, in FIFO order is 86, 1470, 913, 1774, 948, 1509, 1022, 1750, 130 starting from the current head position, what is the total distance (in cylinders) that the disk arm moves to satisfy all a pending requests, for each of the following disk scheduling algorithms? 10
(i) FCFS (ii) SSTF (iii) SCAN (iv) LOOK
(b) Explain the different allocation method for file. 10
4. (a) Consider the following process 10

Process	Arrival Time	Service Time
P1	0	8
P2	1	4
P3	2	9
P4	3	5

Solve the above given problem with shortest remaining time first by drawing gantt chart and also calculate the average waiting time, turn around time, and throughput.

(b) Explain RAID with different levels. 10
5. (a) Explain the working of EDF and RMA real time scheduling algorithms. 10
(b) Describe process management in Linux. 10
6. (a) What is deadlock? Explain deadlock prevention and avoidance. 10
(b) What is Semaphore? Give an implementation of bounded buffer producer consumer problem using semaphore. 10