School of Computing and Information Technologies

Operating System Theory andDesign

Assignment

To be attempted in Groups of 5-6 students

a) Question 1

a. Discuss process scheduling in the following operating systems

   i. Unix operating system

   ii. Windows XP operating systems

b) Question 2

a. Discuss the Bankers algorithms as used to handling deadlocks in operating system

b. Discuss the strategies used to handle/manage deadlocks in the following operating systems

   i. Windows operating system

   ii. Linux Operating System

c. How does deadlock avoidance work in Windows 10?

c) Question 3

a. Describe disc (disk-arm) scheduling algorithms
b. A disk has the following cylinder requests: 2, 15, 30,9,16 and 10 in that order. Given that the disk arm is at position 14, describe the head movement using the following scheduling algorithms.
   i. FCFS.
   ii. Shortest Seek Time First.(SSTF)
   iii. SCAN
   iv. LOOK

d) Question 4

The table below shows the arrival time and CPU burst of processes P1, P2, P3 and P4

Processes	Arrival Time	CPU Burst
P1	0	10
P2	1	7
P3	4	5
P4	6	1

With aid of a GANTT chart, determine the response time, waiting time and turn-around time of each process using shortest remaining time next and Round Robin algorithms

Question 5

a) Describe the functions of a filesystem

b) Discuss the structure of Linux filesystem