5. Attempt any <u>two</u> parts of the following: 2×10=20

(a) Consider a process requesting to read from the following tracks:

98, 183, 37, 122, 14, 124, 65, 67

Assume if the disk head is initially at 53.

(i) Draw track chart for FCFS, SSTF disk scheduling.

(ii) Determine total head movement in tracks in each case.

(b) What is the protection and security mechanism used in Window NT? Discuss it.

(c) Describe the memory management and file system of LINUX.

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NBC-203

(Following Paper ID and Roll No. to be filled in your Answer Book)

PAPER ID : 194403

Roll No.

M.C.A. (Dual Degree) (Semester-II)

SPL. THEORY EXAMINATION, 2014-15

OPERATING SYSTEM

Time : 3 Hours] *[Total Marks : 100*

Note: Attempt all questions. All questions carry equal marks.

1. Attempt any <u>four</u> parts of the following: 4x5=20

(a) Explain operating system. Discuss the various functions of an operating system.

(b) Discuss the differences between a time sharing system and real time system.

(c) What is distributed system? Discuss it.

(d) Explain the following:

(i) Kernel

(ii) Virtual machine

(e) What are system call? Describe any three system calls.

(f) Differentiate between batch processing system and multiprogramming systems.

2. Attempt any <u>four</u> parts of the following: 5x4=20

(a) What do you understand by process? Discuss process state transition diagram.

(b) Consider the following set of processes with the length of CPU burst time given in milliseconds:

Process	Arrival time	Burst time
P1	0	8
P2	3	4
P3	1	1

Calculate average waiting time and average turn around time for Preemptive SJF.

(c) What is critical section? Discuss.

(d) Discuss one classical problem related to the process synchronization.

(e) Explain the performance criteria for CPU scheduling.

(f) What is short term, long term and medium term scheduling?

3. Attempt any <u>two</u> parts of the following: 2x10=20

(a) Define deadlock and also discuss the four necessary conditions for a deadlock to exist. Give a brief intuitive argument for the reason each individual condition is necessary.

(b) Discuss the contiguous, Linked and Indexing file allocation schemes. Which allocation scheme will minimize the amount of space required in directory structure and why?

(c) Explain the combined segmentation with Paging memory management scheme.

4. Attempt any <u>two</u> parts of the following: 2x10=20

(a) Discuss the following storage placement strategies with suitable examples:

(i) Best fit

(ii) First fit

(iii) Worst fit

(b) Define virtual memory concept and discuss page replacement algorithm in brief.

(c) Discuss the disk scheduling algorithm. Which is the best algorithm and why?