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Shree Damodar College of Commerce & Economics, Margao
F.Y.B.C.A. SEM II, End Semester Examination, April 2018

OPERATING SYSTEM CONCEPTS

Duration: 2 Hours

Total Marks: 50

- Instructions:** 1) All Questions are **Compulsory**.
2) Figures to the right indicate Full Marks.
3) Start each new question on a fresh page

Q.1 A) Define the following

Marks (5 x 2 =10)

- i) Fragmentation
- ii) Valid-invalid Bit
- iii) Semaphores
- iv) Mutual Exclusion
- v) Network Operating Systems

Q.2 Answer the following

Marks (10)

- a) Briefly explain the concept of monitor in batch processing system (2)
- b) What are the requirements for the solution to critical section problem? (3)
- c) List the advantages and disadvantages of using SJF scheduling algorithm. For the following set of processes, draw the Gantt chart and calculate average waiting time for pre-emptive SJF algorithm. (5)

<u>Process</u>	<u>Arrival Time</u>	<u>Burst Time</u>
P1	0	8
P2	1	4
P3	2	9
P4	3	5

Q.3 Answer the following

Marks (10)

- a) Briefly explain the benefits of threads (2)
- b) With a suitable diagram discuss the states of a process. (3)
- c) Define page fault. With a suitable diagram list the steps in handling a page fault. (5)

Q.4 Answer the following

Marks (10)

- a) Explain file system mounting (2)
- b) Explain segmentation and the implementation of segment table. (3)

- c) What is the basic mechanism of SSTF algorithm? Suppose that a disk drive has 5,000 cylinders, numbered 0 to 4,999. The drive is currently serving a request at cylinder 2,150, and the previous request was at cylinder 1,805. The queue of pending requests, in order, is: 2,069, 1,212, 2,296, 2,800, 544, 1,618, 356, 1,523, 4,965, 3681. Starting from the current head position, what is the total distance (in cylinders) that the disk arm moves to satisfy all the pending requests for SSTF disk-scheduling algorithm? (5)

Q.5 Answer the following

Marks (10)

- a) Differentiate between protection and security of OS. (2)
- b) What are program threats? Discuss any three. (3)
- c) Discuss the benefits and design issues of distributed operating system (5)