

OPERATING SYSTEM-323

Semester-VI

Time Allowed : Three Hours]

[Maximum Marks : 75

Note:- Attempt *five* questions in all, selecting any *two* from each of the Sections A and B. Section-C is compulsory.

SECTION-A

1. Describe the special features and applications of the following operating systems :

- (i) Multi-programming
- (ii) Multi-tasking
- (iii) Timesharing
- (iv) Real time
- (v) Batch processing.

2. Explain the following :-

- (i) Operating system services
- (ii) Kernal of the operating system
- (iii) Multiprocessing

15

[P.T.O

33-M-D-27/8010/AQR-33684

- (iv) Distributed processing
- (v) Personal Computer System.

15

3. Explain the following with suitable example :

- (i) Pre-emptive and Non-pre-emptive scheduling
- (ii) Turnaround time and Response time
- (iii) Multilevel feedback queues.

15

4. Compute the Average waiting time and Turnaround time for the following set of processes by applying FCFS, pre-emptive SJF algorithms :

Process	Arrival Time (ms)	CPU burst (ms)
P ₁	0	10
P ₂	1	29
P ₃	2	3
P ₄	3	7
P ₅	4	12

15

SECTION-B

5. Explain the following :-

- (i) Internal and External fragmentation
- (ii) Mapping between logical and physical address space
- (iii) Difference between paging and segmentation.

15

6. (a) With an example, explain multiple partitioned, contiguous memory allocation. What are the drawbacks of this method? 10
- (b) What are the conditions of a deadlock? Explain in detail. 5
7. (a) What are the various allocation methods in file management? Explain in detail. 10
- (b) Enumerate the similarities and differences between pure paging and pure segmentation. 5
8. On a disk with 1000 cylinders numbered 0 to 999, compute the number of tracks the disk arm must move to satisfy all the requests in the disk queue. Assume the last request serviced was at track 756 and the head is moving toward track 0. The queue in FIFO order contains requests for the following tracks: 811, 348, 153, 968, 407, and 500. Perform the computation for the following scheduling algorithms: FCFS, SSTF, SCAN, LOOK, C-SCAN, C-LOOK. 15

SECTION-C

9. (a) What do you mean by starvation?
- (b) What is virtual memory? Why is it so called?
- (c) What is file system?
- (d) What are PCBs? What do they store?
- (e) What is the difference between a page table and a page frame?

- (f) Name the operating system components.**
- (g) What is inter-process communication ?**
- (h) What are threads ? How they are different from multi-tasking ?**
- (i) What is need of page replacement ?**
- (j) What is process management ?**

1.5×10=15