

Roll No.

Subject Code—2073

M.C.A. (First Year) EXAMINATION

(5 Years Integrated Course)

MCA-105

OPERATING SYSTEM-I

Time : 3 Hours

Maximum Marks : 100

Note : Attempt any *Five* questions. All questions carry equal marks.

1. What do you understand by an operating system ? What is its need ? What are the various functions of an operating system ? Explain in detail.
2. Define and compare the following types of operating system :
 - (a) Multi-programmed Batch Processing
 - (b) Time Sharing
 - (c) Parallel
 - (d) Distributed.

3. What are Operating system structures ? Discuss in detail the various operating system services.
4. Following is the information relating to some processes :

Process	Burst	Priority	Arrival Time
P1	29	1	0
P2	14	5	6
P3	10	3	8
P4	8	1	10
P5	6	2	13

Using the above information, compute the average waiting time and average turnaround time for each process for the following algorithms (Ignore the arrival time for non-preemptive algorithms) :

- (a) Shortest Job First
- (b) Preemptive Shortest Job First
- (c) Priority Scheduling
- (d) Preemptive Priority Scheduling
- (e) Round Robin (with time quantum of 3 units).

5. Define the following :

- (a) Process
- (b) Process State
- (c) Process Control Block
- (d) Scheduling Queues
- (e) Schedulers.

6. Define deadlock. What are the necessary conditions for the occurrence of deadlocks ? Discuss the various deadlock prevention and avoidance algorithms.

7. What is Memory Management ? What are the different memory management techniques. ? Write a note on swapping.

8. Write short notes on the following :

- (a) Personal computer system
- (b) Virtual machines
- (c) Scheduling criteria
- (d) Logical addresses.