OPERATING SYSTEM

Time Allowed : 3 Hours *Maximum Marks : 80*

Note : Attempt five questions in all, selecting ***one*** question from each unit in addition to compulsory **Question No. 1**. All questions carry equal marks.

Compulsory Question

1 (a) What are the basic function of an operating system ?

(b) What is Time Sharing System ? Explain the features of Time Sharing System.

(c) Define System Calls. Explain the various systems calls.

(d) What is PCB ?

(e) What is Process ? Give the difference between a process and a program.

(f) What are the types of real time system ?

(g) What is virtual memory ?

(h) Explain thrashing. 3×8=24

UNIT-I

2. (a) Discuss the historical evolution of an operating system. 4

(b) What do you mean by Multiprocessor System ? What are its main types ? 4

(c) What are the services provided by operating system ? 6

3. (a) What is Operating System ? Give the view of OS as Resource Manager. 8

(b) What are multi tasking, multi programming and multi threading ? 6

UNIT-II

4. (a) Consider the following set of processes wit the length of CPU burst time given in the milliseconds.

Process	Arrival Time	Burst Time	Priority
P1	0	8	5
P2	1	1	1
P3	2	3	2
P4	3	2	3
P5	4	6	4

Calculate Average Turnaround Time and Average Waiting Time for FCFS, SJF, SRTF, Priority Scheduling Algorithm. 12

(b) What are the necessary conditions for deadlock ? 2

5. (a) What do you mean by Deadlock Avoidance ? Explain the use of Avoidance with illustrration. 10

(b) Write a short note on Schedulers. 4

UNIT-III

6. (a) What is Semaphore ? Give the implementation of Bounded Buffer Productor Consumer Problem using Semaphore. 8

(b) Explain Inter-Process Communication using Message Passing. 8

7. (a) What is paging ? Explain paging hardware. 5

(b) Discuss any three page replacement algorithm with example. 9

UNIT-IV

8. Discuss the different operations that are carried out on a directory. Give advantage and disadvantages of single level, double level and tree structured directory. 14

9. (a) Compare following disk scheduling algorithm with example :

(i) SCAN & C-SCAN

(ii) LOOK & C-Look. 10

(b) Discuss file protection mecl anism. 4