4TH SEM / CS&E /IT/ 2023(S)

TH-1 Operating System

Full Marks: 80 Time- 3 Hrs

Answer any five Questions including Q No.1& 2
Figures in the right hand margin indicates marks

1. Answer **All** questions 2 x 10
   a. Define PCB.
   b. What is context switching?
   c. Define external fragmentation.
   d. What is a semaphore?
   e. Write the difference between program and process.
   f. Define Demand Paging.
   g. What do you mean by circular wait.
   h. Define file and directory.
   i. What is Spooling?
   j. What do you mean by Virtual Memory?

2. Answer **Any Six** Questions 6 x 5
   a. Briefly explain about contagious and non-contagious memory management.
   b. Write the difference between spooling and buffering.
   c. Define process and process state. Draw a suitable diagram to explain different states of a process.
   d. What is a Page Fault? How it can be handled.
   e. Define dead lock. Explain Bankers algorithm for deadlock prevention.
   f. Explain the functions of I/O traffic controller and I/O scheduler.
   g Write short notes (any two)
      a) Critical section
      b) Race condition.
      c) Process synchronisation.

3 Discuss about First Come First Serve (FCFS) and Shortest-Job-First (SJF) CPU Scheduling with suitable example. 10

4 Explain different structures of operating system. 10

5 Explain briefly the various File Access Methods. 10

6 Explain briefly different phases of a compiler. 10

7 Explain briefly about the different methods of allocating disk space. 10

4TH SEM. / CSE/IT / 2022(S)

Th-1 Operating System

Full Marks: 80 Time- 3 Hrs

Answer any five Questions including Q No.1& 2
Figures in the right hand margin indicates marks

1. Answer All questions 2 x 10
   a. Define Process Synchronization.
   b. What is Demand Paging?
   c. What is the significance of using semaphore?
   d. What is Page Fault?
   e. Write the difference between program & process.
   f. What is Fragmentation?
   g. What are the objectives of operating system?
   h. What is Belady's anomaly?
   i. What do you mean by job scheduling?
   j. What is context switching?

2. Answer Any Six Questions 6 x 5
   a. What is Deadlock? Explain the necessary conditions for deadlock?
   b. What is Round Robin Scheduling algorithm? Explain with example.
   c. Explain different File allocation methods briefly.
   d. Compare the FCFS and SJF scheduling algorithm with respect to following.
      1.Turn Around Time
      2.Waiting Time
      Explain with suitable example.
   e. Explain Banker's algorithm for deadlock prevention.
   f. Define the following.
      1.Swapping
      2.Virtual Memory
   g. Write short note on paging.

3 What are the functions of a Compiler? Explain briefly the seven phases of compiler. 10

4 What are the different page replacement algorithms available in operating system? Explain with example. 10

5 Explain different memory allocation techniques. 10

6 Explain different types of Scheduler with suitable diagram. 10

7 i) Explain SPOOLING with diagram. 10
   ii) Explain demand paging.

4TH SEM./AI &ML/ CS&E/IT/ 2024(S)

Th-1 Operating System

Full Marks: 80 **Time- 3 Hrs**

Answer any five Questions including Q No.1& 2
Figures in the right hand margin indicates marks

1. Answer All questions 2 x 10
   a. Define IPC.
   b. Difference between multiprogramming and multiprocessing.
   c. What is turnaround time?
   d. Define buffering.
   e. Define file and folder.
   f. What is the use of valid and invalid bits in paging?
   g. Define kernel.
   h. Define dead lock.
   i. Define tokens, lexeme.
   j. Define semaphore.

2. Answer **Any Six** Questions 6 x 5
   a. Explain monolithic Structure of operating system.
   b. What is device management? Explain function of dedicated, shared virtual device with example.
   c. Define Process and explain about different process State.
   d. Define page. Explain demand paging technique of memory management.
   e. write the difference between spooling and buffering
   f. State and explain Bankers safety algorithm.
   g. Explain different file access methods

3. Why dead locks occur? Explain how dead lock is recovered and prevented. 10

4. Explain briefly about different phases of compiler. 10

5. Consider the set of 3 processes whose arrival time and burst time are given below- 10

Process Id	Arrival time	Burst time
P1	0	5
P2	1	7
P3	2	3
P4	3	4

If the CPU scheduling policy is Round Robin, and time quantum is 3 calculate the average waiting time and average turnaround time.

6. Differentiate between contiguous and non-contagious memory allocation. 10
   Explain Swapping.

7. Short notes(any 2) 10
   i. Race condition.
   ii. Virtual memory.
   iii. Memory compaction.
   iv. Types of scheduler.