Dec.-23-0403

CS-402 (Operating System) [CSE, IT]
B.Tech. 4th (CBCS)

Time : 3 Hours   Max. Marks : 60

The candidates shall limit their answers precisely within the answer-book (40 pages) issued to them and no supplementary/continuation sheet will be issued.

Note : Attempt one question each from section ABCD. Section E is compulsory. Each question carry equal marks.

SECTION - A

1. Consider the following set of process that arrive at time o, with the length of the CPU burst given in milliseconds Process Burst time

P1	24
P2	3
P3	3

   Calculate the average waiting time when the processes arrive in the following order:

   (a) P1, P2, P3 and

   (b) P2, P3, P1

   Provide the Gantt chart for the same.   (10)

2. Explain inverted page table technique to implement paging. What are the disadvantages of other paging techniques which is the impetus behind inverted page table?   (10)

SECTION - B

3. (a) Why should page replacement be performed? Compare FIFO, Optimal and LRU page replacement algorithm, with an example of your choice.   (5)

   (b) Explain segmentation.   (5)

4. Explain directory structure of Windows and Linux operating systems.   (10)

SECTION - C

5. Explain classical IPC problem and its solutions.   (10)

6. (a) What are the different conditions or condition which define that there is a deadlock?   (5)

   (b) Explain Message-Passing Mechanism. Explain its all routing algorithm and their performance comparison. (5)

SECTION - D

7. What is the difference between multitasking and time sharing operating systems?   (10)

8. Explain the resource - allocation graph algorithm for deadlock detection with relevant diagram.   (10)

SECTION - E (Compulsory)

9 (i) Define operating system.

   (ii) What are the features and advantages of cooperating processes?

(iii)   Define 'monitor'. What does it consist of?

(iv)   What are the disadvantages of single contiguous memory allocation?

(v)   What is demand paging?

(vi)   Describe and file system attribute in Linux.

(vii) What is the seek time and rotational latency?

(viii) Differentiate between absolute code and relocatable code.

(ix)   What is difference between DOS and LINSUX operating systems?

(x)   Define lazy scheduler.   (10×2=20)