BACHELOR OF TECHNOLOGY (CBCS) (2021-COURSE)

B. Tech. Sem - IV Computer Science & Engineering- AL & ML : WINTER : 2023

SUBJECT : OPERATING SYSTEM

Day : Tuesday

Date : 21-11-2023

W-23947-2023

Time : 02:30 PM-05:30 PM

Max. Marks : 60

N.B.

1) All questions are **COMPULSORY.**
2) Figures to the right indicate **FULL** marks.
3) Assume suitable data, if necessary.

Q.1 What is Resource Manager? Explain OS Evolution in detail. **(10)**

OR

What are OS services? Explain its Goal.

Q.2 What is process? Explain PCB in details. **(10)**

OR

What is Thread state diagram? Explain its function.

Q.3 What are the criteria for CPU Scheduling? Describe in detail. **(10)**

OR

Calculate Avg. Waiting time and avg. Turnaround time using SJF NP&P Algorithm.

Process Id	Arrival time	Burst time
P1	3	1
P2	1	4
P3	4	2
P4	0	6
P5	2	3

Q.4 What is meant by Race condition? Why do race conditions occur? Give an algorithm to avoid race condition between tow processes. **(10)**

OR

What is semaphore? What operations are performed on semaphore? Give an implementation of semaphore and explain how it avoids busy waiting?

Q.5 What is paging? Explain principle of operation of paging with neat diagram. Give the structure of page map table. **(10)**

OR

Explain principle of operation of demand paging? Describe hardware support needed for demand paging?

Q.6 Describe the following methods of free space management **(10)**

- Bit Vector
- Linked list
- Grouping
- Counting

OR

Suppose the order of request is – (82,170,43,140,24,16,190) And current position of Read/Write head is : 50 calculate total seek Time using SCAN, CSCAN,LOOKCLOOK,SSTF.

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