BACHELOR OF TECHNOLOGY (CBCS) (2021-COURSE)
B. Tech. Sem - IV Computer Science & Business Systems : WINTER : 2024
SUBJECT: OPERATING SYSTEMS

Day : Saturday
Date : 30/11/2024

W-24154-2024

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 Define system calls. Write in detail about various system calls. **(10)**

OR

Q. 1 Explain basic functions of operating system and different evolutions of operating system. **(10)**

Q. 2 Draw process state transition diagram and explain each state in it. Define thread and give benefits of thread. **(10)**

OR

Q. 2 Explain the concept of context switching with the help of neat diagram. **(10)**

Q. 3 Consider following processes where Arrival and Burst Time are shown below: - **(10)**

Process	Burst Time	Arrival Time
P1	05	0
P2	04	2
P3	07	3
P4	06	5

Calculate Average waiting time and Average Turnaround time if the processes are scheduled using FCFS

OR

Q. 3 Specify the role of long term, short term and medium term scheduler in OS with diagram. **(10)**

Q. 4 What is Critical section? Explain Race condition with example. Explain in detail Readers- writers problems in operating system. **(10)**

OR

Q. 4 Explain necessary conditions for deadlock with example. Explain Banker's Algorithm with suitable example. **(10)**

Q. 5 Explain following terms: - **(10)**
i) Internal fragmentation.
ii) External fragmentation.
iii) Compaction

OR

Q. 5 For the following Ref. string **(10)**
6, 5, 1, 2, 5, 3, 5, 4, 2, 3, 6, 3, 2, 1, 2
Count the number of page faults that Occur with 3 frames using FIFO, optimal and LRU page replacement methods.

Q. 6 Write in detail about various file Access methods with suitable diagram. **(10)**

OR

Q. 6 Explain free space management in detail. **(10)**

******