B. TECH. (COMPUTER SCIENCE & BUSINESS SYSTEMS) (CBCS - 2018 COURSE)
B.Tech. (CSBS) Sem - IV :SUMMER- 2022
SUBJECT : OPERATING SYSTEMS

Day : Tuesday

Date : 14-06-2022

S-20452-2022

Time : 10:00 AM-01:00 PM

Max. Marks : 60

N.B.:

1) All questions are **COMPULSORY.**
2) Figures to the right indicate **FULL** marks.
3) Draw neat and labeled diagram **WHEREVER** necessary.
4) Assume suitable data if necessary.
5) Use of non-programmable **CALCULATOR** is allowed.

Q.1 Explain different types of Operating System. Discuss categories of system calls **(10)** with example.

OR

Q.1 Explain Monolithic Kernel and Microkernel operating system structure with **(10)** neat diagram.

Q.2 Compare process with thread. Explain multi-threading models in operating **(10)** system with its benefits of multithreaded programming.

OR

Q.2 Explain Process and Process State Transition with diagram. Discuss the various **(10)** sections of the process creation.

Q.3 Discuss Shortest Job First with prediction of burst time and explain different **(10)** characteristics of CPU scheduling algorithm.

OR

Q.3 Explain the different types of scheduler and differentiate preemptive and non- **(10)** preemptive scheduling algorithm with suitable example.

Q.4 What is Critical Section problem? Explain Readers-Writers problem. Give a **(10)** solution to Readers- Writers problem using Monitors.

OR

Q.4 Explain in detail deadlock avoidance using Banker's algorithm with suitable **(10)** example.

Q.5 Explain in brief the concept of demand paging and calculate page fault using **(10)** optimal page replacement algorithm for the following reference string:
7, 0, 1, 2, 0, 3, 0, 4, 2, 3, 0, 3, 2, 1, 2, 0, 1, 7, 0, 1
Assume frame size = 3.

OR

Q.5 Discuss contiguous memory allocation with internal and external **(10)** fragmentation by giving suitable example.

Q.6 Explain various file allocation methods with neat diagram. **(10)**

OR

Q.6 Explain disk structure with neat diagram and explain C-SCAN disk scheduling **(10)** algorithm with suitable example.

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