CSPC-412

DEC-25-0042

CSPC-412 (Operating System (AI&ML, CSE,AI&DS)

B.Tech.-4th NEP

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 five questions in all, select one question each from section A, B, C, D. Section E (Question-9) is compulsory.

Section A

1. a) What is operating system? Explain the various functions of an operating system.   (6)

    b) What is system calls? Explain the various types of system calls.   (6)

2. a) What is process? Explain the various states of a process.   (6)

    b) What is inter process communication? Explain the methods to implement inter process communication. (6)

Section B

3. a) Explain critical section problem. Also discuss Peterson's solution to solve the critical section problem.   (6)

    b) Explain First Come First Serve scheduling algorithm. Distinguish between preemptive and nonpreemptive Scheduling.   (6)

4. a) Write notes about multiple-processor scheduling and real-time scheduling.   (6)

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    b) What is deadlock? Explain recovery from deadlock.   (6)

Section C

5. a) Define: Belady's anomaly. What is the purpose of paging the page table?   (6)

    b) Explain about file system mounting in detail.   (6)

6. a) What is Virtual memory management? List two differences between logical and physical addresses.   (6)

    b) Determine the most common schemes for defining the logical structure of a directory.   (6)

Section D

7. a) Compare the functionalities of FCFS, SSTF, C-SCAN and CLOOK with example.   (6)

    b) Write a note on OS virtualisation.   (6)

8. a) What are the various disk-scheduling algorithms? Explain C Scan Disk Scheduling.   (6)

    b) Explain in detail the file system in LINUX system. (6)

Section-E (Compulsory)

9. a) What is disadvantage of Shotest Job first scheduling algorithm?

    b) What is priority inversion?

    c) What is context switching? Explain the steps involved in context switching.

    d) What are the differences between multiprogramming and multiprocessing?

    e) Explain Thrashing.

    f) List various security attacks on Operating system.
                                                            (6×2=12)