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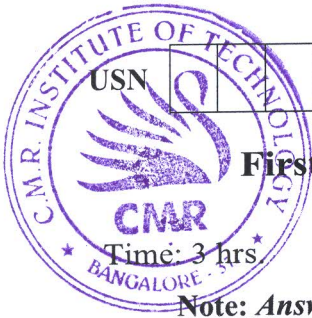**First Semester MCA Degree Examination, June/July 2023**
Operating System with UNIX

Time: 3 hrs.   Max. Marks: 100

Note: *Answer any FIVE full questions, choosing ONE full question from each module.*

Module-1

1   a.   What is Operating System? Explain operating system structure.   **(10 Marks)**
    b.   What is system call? Explain different types of system calls.   **(10 Marks)**

OR

2   a.   Explain First come, First served and Round Rabin (RR) scheduling algorithm with example.   **(10 Marks)**
    b.   Describe process synchronization with example.   **(10 Marks)**

Module-2

3   a.   What is Deadlock? Explain dead lock characterization.   **(10 Marks)**
    b.   Explain deadlock handling and prevention with example.   **(10 Marks)**

OR

4   a.   Describe demand paging with example.   **(10 Marks)**
    b.   What is Thrashing? Explain with example.   **(10 Marks)**

Module-3

5   a.   Explain the Unix file system, with a neat diagram and explain the parent child relationship.   **(10 Marks)**
    b.   Explain absolute and relative pathname with example.   **(10 Marks)**

OR

6   a.   Explain Hard link and soft link with example.   **(10 Marks)**
    b.   What is Redirection? Explain with example.   **(10 Marks)**

Module-4

7   a.   What is process? Explain mechanism of process creation.   **(10 Marks)**
    b.   Explain the following commands with example:
         i) at   ii) batch   iii) cron   iv) PS   v) kill   **(10 Marks)**

OR

8   a.   What is shell scripts? Explain shell variable with example.   **(10 Marks)**
    b.   Write a shell script that takes a valid directory name as a argument recursively descend all the sub directories, finds the maximum length of any file in that hierarchy and writes this maximum value to the standard output.   **(10 Marks)**

Module-5

9   a.   Explain structure of an awk script with example.   **(10 Marks)**
    b.   Explain Built-in variables of awk with example.   **(10 Marks)**

OR

10   a.   Explain sh and export command with example.   **(10 Marks)**
     b.   Write an awk script to compute gross salary of an employee accordingly to rule given below.
          If basic salary $>= 15000$ then HRA = 20% of basic and DA = 50% of basic.
          If basic salary < 15000 then HRA = 15% of basic and DA = 45% of basic.   **(10 Marks)**

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