CBCS SCHEME

USN ☐☐☐☐☐☐☐☐☐☐ **20MCA12**

First Semester MCA Degree Examination, July/August 2022
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. Define operating system. Different single processor and multiprocessor in detail. **(10 Marks)**
   b. What is system call? Explain the different types of system calls. **(10 Marks)**

OR

2 a. Illustrate the different scheduling algorithms with examples. **(10 Marks)**
   b. Explain the three classical problems of synchronization. **(10 Marks)**

Module-2

3 a. What is a deadlock? What are the necessary conditions for deadlocks? **(06 Marks)**
   b. Explain the Banker's algorithm with suitable examples. **(10 Marks)**
   c. Illustrate the resource-allocation graph. **(04 Marks)**

OR

4 a. Explain the concepts of contiguous memory allocation. **(10 Marks)**
   b. For a given reference string calculate the number of page faults using :
   i) Optimal Page Replacement   ii) Least Recently Used
   7 0 1 2 0 3 0 4 2 3 0 3 2 1 2 0 1 7 0 1. **(10 Marks)**

Module-3

5 a. What is a file? Explain absolute and relative path names. **(10 Marks)**
   b. Briefly explain the Unix file system. **(10 Marks)**

OR

6 a. Illustrate the three standard files. **(10 Marks)**
   b. Differentiate between hard links and symbolic links with an example. **(10 Marks)**

Module-4

7 a. What is a process? Explain the mechanism of process creation. **(10 Marks)**
   b. Briefly explain the difference between internal and external commands. **(06 Marks)**
   c. Write the details of killing processes with singles. **(04 Marks)**

OR

8 a. With syntax and example, explain CASE conditional statement. **(10 Marks)**
   b. Illustrate different operations of test command. **(10 Marks)**

Module-5

9 a. What is awk? Explain simple awk filtering with splitting a lines in to fields. **(10 Marks)**
   b. Describe :   i) Begin and End sections   ii)Variable and Expressions. **(10 Marks)**

OR

10 a. Write short notes with respect to : i) Arrays ii) Functions. **(10 Marks)**
    b. Write an awk script to compute gross salary of an employee accordingly to a given rule.
    HRA – 15%, DA – 45% of basic salary. **(10 Marks)**

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