

CBCS SCHEME

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20MCA12

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 Robin (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: (10 Marks)
i) at ii) batch iii) cron iv) PS v) kill

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. (10 Marks)
If basic salary \geq 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.

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Important Note : 1. On completing your answers, compulsorily draw diagonal cross lines on the remaining blank pages.
2. Any revealing of identification, appeal to evaluator and/or equations written eg. $42+8=50$, will be treated as malpractice.