CBCS SCHEME

USN | | | | | | | | | | |

20MCA12

First Semester MCA Degree Examination, July/August 2021
Operating System with UNIX

Time: 3 hrs.

Max. Marks: 100

Note: *Answer any FIVE full questions.*

1 a. What is an operating system? Explain with a neat diagram the component of operating system. **(10 Marks)**

   b. What is process, process state and Process Control Block (PCB)? Describe the contents of PCB. **(10 Marks)**

2 a. Consider the following set of processes with given length of CPu burst. Draw the Gantt chart for SJF (Preemptive)2 SJF (Non Preemptive). Find the average waiting time for each scheduling algorithm.

Processes	P_1	P_2	P_3	P_4	P_5
Burst time	6	2	8	3	4
Arrival time	2	5	1	0	4

(10 Marks)

   b. What do you mean by CPU scheduling? Explain the scheduling criteria of Algorithm. **(10 Marks)**

3 a. Write and explain Bankers Algorithm for deadlock avoidance. **(10 Marks)**

   b. With a neat diagram, explain Resource allocation graph. **(10 Marks)**

4 a. Explain the difference between internal and external fragmentation. **(10 Marks)**

   b. What is page fault? What action does the operating system take when a page fault occurs? Explain with the diagram. **(10 Marks)**

5 a. Explain UNIX file system with a neat diagram. **(10 Marks)**

   b. What is the use of ls command? In detail explain the output of ls-l. **(10 Marks)**

6 a. Explain the relative and absolute permission with examples. **(10 Marks)**

   b. Describe hard links and softlinks with suitable examples. **(10 Marks)**

7 a. Explain the process in UNIX and mechanism of process creation. **(10 Marks)**

   b. State the difference between internal and external commands in UNIX. **(10 Marks)**

8 a. Explain the use of set, set-x, test and IJ with example. **(10 Marks)**

   b. Explain : i) If conditional statement, case statement
              ii) While and for looping with examples **(10 Marks)**

9 a. What is AWK? Explain the built-in variable and built-in function used by AWK. **(10 Marks)**

   b. Write an AWK script to compute gross salary of an employee accordingly to rule given below.
   If a basic salary is < 10,000 then
   HRG = 15% of basic 2 DA = 45% of basic
   If basic salary is >= 10,000 then HRA = 20% of basic 2, DA = 50% of basic. **(10 Marks)**

10 a. Explain the following : i) Exec ii) export iii) eval. **(10 Marks)**

   b. Write an awk program the folds long lines into 40 columns. **(10 Marks)**

* * * * *