Roll No. : .....

Total No. of Questions : **16**] [Total No. of Printed Pages : **3**

SEMC–215

M.Sc. (IInd Semester) Examination, 2022

COMPUTER SCIENCE

Paper – FS–COMP–MSC–CS–CC–203

(Operating System)

Time : 1½ Hours] [*Maximum Marks : **40***

Note :– The question paper contains three Sections.

Section–A **(Marks : 1 × 10 = 10)**

Note :– Answer all the *ten* questions (Answer limit **50** words). Each question carries **1** mark.

Section–B **(Marks : 3 × 5 = 15)**

Note :– Answer any *five* questions by selecting at least *one* question from each Unit (Answer limit **200** words). Each question carries **3** marks.

Section–C **(Marks : 5 × 3 = 15)**

Note :– Answer any *three* questions by selecting *one* question from each Unit (Answer limit **500** words). Each question carries **5** marks.

Section–A

1. (i) What do you mean by lightweight process ?

   (ii) What do you understand by throughput ?

(iii) Define System calls.

(iv) Differentiate between deadlock avoidance and prevention.

(v) What do you mean by virtual memory ?

(vi) Define critical section problem.

(vii) What is the purpose of using uname command in Linux ?

(viii) Which command may be used to change the fill permissions ?

(ix) Write the syntax for while loop in shell scripting.

(x) What do you mean by multiprogramming ?

Section–B

Unit–I

2. Consider the following processes and find the average waiting time using round robin scheduling with time slice 3 :

Processing queue	Burn time
P1	5
P2	3
P3	6

3. How do you find the average turnaround time of a system with specified processes ?

4. Differentiate between preemptive and non-preemptive scheduling.

Unit–II

5. Explain the operations used for implementing semaphores.

6. Discuss the advantages and disadvantages of segmentation.

7. Explain LRU page replacement technique.

Unit–III

8. Write a shell script to find the average of first ten natural numbers.

9. Write the steps to install Linux on your system.

10. Explain the concept of directory structure in Linux.

Section–C

Unit–I

11. Explain the concept of priority based CPU scheduling with a suitable example.

12. Write short notes on each of the following :

    (a) MLQ with feedback

    (b) Process states

Unit–II

13. Explain the working of Banker's algorithm in detail.

14. Explain the concept of paging with a suitable example. How are pages stored in memory ?

Unit–III

15. Write a shell script to count the odd and even numbers out of ten entered numbers by the user.

16. Explain the working of the following commands :

    (a) man

    (b) pwd

    (c) ls-a

    (d) rm

    (e) history