

Roll No. 324899.....

Total Pages : 4

BCA-203

B.C.A. (Second Year) Examination, 2019

FUNDAMENTALS OF OPERATING SYSTEM

Paper-III

Time Allowed : Three Hours

Maximum Marks : 100

PART-A

[Marks : 20

Answer all questions (50 words each).

All questions carry equal marks.

PART-B

[Marks : 50

Answer **five** questions (250 words each), selecting **one**

question from each Unit. All questions carry equal marks.

PART-C

[Marks : 30

Answer any **two** questions (300 words each).

All questions carry equal marks.

BCA-203/422/1,320

P. T. O.

PART-A

1. Answer the following questions :

- (i) How Multiprogramming increases utilization of CPU ?
- (ii) What is Hand held system ?
- (iii) What is scheduling Criteria ?
- (iv) What do you mean by Co-operating Process ?
- (v) What is Critical section ?
- (vi) What is Synchronization ?
- (vii) What do you mean by allocation of Frames ?
- (viii) What is Belady anomaly ?
- (ix) Give two features of Linux.
- (x) Give difference between Kernel and Shells.

PART-B

UNIT-I

2. Explain the importance of Real Time Embedded systems.
3. Explain layered structure of Operating system.

UNIT-II

4. What are the criteria for evaluating CPU scheduling algorithms ? Why do we need it ?

5. What are the advantages of Inter-process Communication ? How Communication take place in shared memory Environment ? Explain.

UNIT-III

6. What is Semaphore ? List the types of Semaphore and show that, if Wait() and Signal() Semaphore operations are not executed atomically then mutual exclusion may be violated.
7. Discuss various techniques to Recover from Deadlock.

UNIT-IV

8. Consider the following pages reference string
1, 2, 3, 4, 2, 1, 5, 6, 2, 1, 2, 3, 7, 6, 3, 2, 1, 2, 3, 6

How many pages fault would occur for the optimal page replacement and LRU (Least Recently Used) algorithm assuming three frames and all frames are initially empty ?

9. What is Thrashing ? What is cause of Thrashing ? How does system detect Thrashing ? What can the system do to eliminate this problem.

UNIT-V

10. Explain the design principles of Linux.

11. Explain the Kernel modules of Linux.

PART-C

12. Write short notes on the following :

(a) Virtual machine.

(b) Clustered system.

13. Discuss performance evaluation of FCFS (First Come First Served) and RR (Round Robin) scheduling.

14. Explain the use of Banker's algorithm for multiple resources for deadlock avoidance with illustration.

15. Explain the following :

(a) Paging

(b) Segmentation

(c) Multiprogramming with fixed partition

(d) Swapping.

16. Explain the following with respect to Linux :

(a) Process scheduling

(b) Network structure.