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Total No. of Printed Pages: [01]

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B. Tech. (AI & Machine Learning) (Semester – 4th)

OPERATING SYSTEMS

Subject Code: BCSES1402

Paper ID: [22113108]

Time: 03 Hours

Maximum Marks: 60

Instruction for candidates:

1. Section A is compulsory. It consists of 10 parts of two marks each.
2. Section B consist of 5 questions of 5 marks each. The student has to attempt any 4 questions out of it.
3. Section C consist of 3 questions of 10 marks each. The student has to attempt any 2 questions.

Section – A

(2 marks each)

Q1. Attempt the following:

- a) System call
- b) Timesharing in OS
- c) Swapping
- d) Bad Block
- e) Fragmentation
- f) Thrashing
- g) Race Conditions in process synchronization
- h) Necessary and sufficient conditions for Deadlock
- i) Dirty page
- j) Services provided by OS

Section – B

(5 marks each)

- Q2. Explain Process synchronization. Solve dining philosopher's problem using Process synchronization.
- Q3. Write a short note on PCB and process states.
- Q4. Write a detailed note on operating system structures.
- Q5. Differentiate between paging and segmentation.
- Q6. What do you mean by Deadlock Avoidance? Explain Banker's Algorithm for Deadlock Avoidance with help of an example.

Section – C

(10 marks each)

- Q7. (a) Explain schedulers in detail.
(b) Compare logical and physical address
(c) Write a short note file allocation methods.
- Q8. Explain in detail the various Algorithms of Disk Scheduling with an example
- Q9. Consider the page references 7, 0, 1, 2, 0, 3, 0, 4, 2, 3, 0, 3, 2, with 4 page frame . Find number of page faults with all page replacement algorithms.