

Total No. of Questions : 8]

SEAT No. :

PE4276

[Total No. of Pages : 2

[6582]-48

S.E. (Artificial Intelligence and Data Science)

OPERATING SYSTEMS

(2019 Pattern) (Semester-III) (217521)

Time : 2½ Hours]

[Max. Marks : 70

Instructions to the candidates:

- 1) Answer Q.1 or Q.2, Q.3 or Q.4, Q.5 or Q.6, Q.7 or Q.8.
- 2) Figures to the right indicates full marks.
- 3) Assume suitable data if necessary.

- Q1)** a) What is deadlock? Explain necessary conditions for deadlock. [6]  
b) Give a semaphore solution for producer-consumer problem. [6]  
c) Short note on Mutual exclusion. [5]

OR

- Q2)** a) Write a semaphore solution for readers-writers problem. [6]  
b) Explain different inter-process communication mechanism. [6]  
c) What is deadlock? Write deadlock prevention policies. [5]

- Q3)** a) Explain: [6]  
i) Internal fragmentation  
ii) External fragmentation  
b) Explain dynamic partitioning placement algorithms. [6]  
c) Write a short note on Buddy System. [5]

OR

- Q4)** a) Explain fixed and dynamic memory partitioning. [6]  
b) Explain the concept of Virtual memory. [6]  
c) Explain paging mechanism. [5]

P.T.O.

- Q5)** a) Explain different file organization techniques. [6]  
b) Explain free space management techniques. [6]  
c) List and Explain directory management techniques. [6]

OR

- Q6)** a) Write a short note on Directory Structure. [6]  
b) List and Explain any two file allocation mechanisms. [6]  
c) Write a short note on I/O buffering. [6]

- Q7)** a) How Memory management is done in Linux. [6]  
b) Write short note on Linux file system. [6]  
c) Explain Process management in Linux. [6]

OR

- Q8)** a) Explain Process Scheduling in Linux. [6]  
b) State and explain different Linux inter-process communication mechanism. [6]  
c) Write short note on Kernel Modules. [6]

