

Total No. of Questions : 8]

SEAT No. :

PB3640

[6261]-48

[Total No. of Pages :2

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) Solve Q.1 or Q.2, Q.3 or Q.4, Q.5 or Q.6, Q.7 or Q.8.
- 2) Neat diagrams must be drawn wherever necessary.
- 3) Figures to the right indicate full marks.
- 4) Assume suitable data if necessary.

Q1) a) What is a deadlock? State and explain the conditions for deadlock to occur. [6]

b) Write the structure of Producer-Consumer problem in bounded buffer using semaphore. Discuss how critical section requirements are fulfilled? [6]

c) What is semaphore? Explain the concept of binary semaphore. [5]

OR

Q2) a) State and explain in brief different methods of handling deadlock. [6]

b) What is Readers-Writers problem? How Reader and Writer processes synchronize? [6]

c) What is monitor? Explain the concept of monitor with example. [5]

Q3) a) Explain segmentation with suitable diagram. [6]

b) How sharing and protection is provided in a paging system? Explain with suitable diagram. [6]

c) Explain with example first-fit, best-fit and worst-fit memory allocation techniques. [6]

OR

P.T.O.

- Q4)** a) Explain paging with suitable diagram. [6]
b) Write a short note on swapping. [6]
c) What are the advantages and disadvantages of fixed and dynamic partitioning of memory? When there is a need of compaction? [6]

- Q5)** a) Which are different file organization techniques? Describe any one in brief. [6]
b) What is an I/O buffer? What is its use? [6]
c) Describe any one disk scheduling policy with an example. [5]

OR

- Q6)** a) What are the file access methods? Explain them in detail. [6]
b) Describe working of FIFO and C-SCAN algorithms with suitable diagrams. [6]
c) Write a note on free space management. [5]

- Q7)** a) How process and threads are implemented in Linux? Explain. [6]
b) How process scheduling is performed in Linux? [6]
c) What are goals of Linux? Also interfaces to linux. [6]

OR

- Q8)** a) Explain process management system calls in Linux. [6]
b) Write a short note on kernel structure. [6]
c) Define the components of LINUX system with diagram. What is the responsibility of kernel in LINUX operating system? [6]

