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Course Code: MCA-105

Course Name: Operating Systems with Linux

**Assignment - 2**  
(Based on Unit - III)

*Marks*

- Q1. Identify the situations to prevent the deadlock in a system. With a suitable example, elaborate the use of resource-allocation graph for deadlock detection. (4)
- Q2. Explain Banker's algorithm for deadlock avoidance, by considering an appropriate example for process initiation denial and resource allocation denial. (4)
- Q3. Discuss contiguous and non-contiguous memory allocation techniques. Illustrate memory mapping and protection. (4)
- Q4. Explain the paging and segmentation approaches of memory management. Elaborate virtual memory with its advantages and disadvantages. (4)
- Q5. Elaborate Belady's anomaly in page replacement algorithm. Consider the following page reference string: 1, 2, 3, 4, 2, 1, 5, 6, 2, 1, 2, 3, 7, 6, 3, 2, 1, 2, 3, 6. Determine the number of page faults using LRU and Optimal replacement algorithms with four frames. (4)