

Chapter 7 – Memory ManagementTrue / False Questions:

1. In a multiprogramming system, main memory is divided into multiple sections: one for the operating system (resident monitor, kernel) and one for the set of processes currently being executed.
2. The task of subdividing memory between the O/S and processes is performed automatically by the O/S and is called relocation.
3. The practice in which a program and data are organized in such a way that various modules can be assigned the same region of memory is called overlaying.
4. The concept of virtual memory is based on one or both of two basic techniques: segmentation and paging.
5. A major problem with the largely obsolete Fixed Partitioning memory management technique is that of external fragmentation.
6. The problem of internal fragmentation can be lessened in a system employing a fixed-partition memory management scheme by using unequal size partitions.
7. In the Dynamic Partitioning technique of memory management, the best-fit placement algorithm is usually the best performer of the available algorithms.
8. In the Dynamic Partitioning technique of memory management, compaction refers to shifting the processes into a contiguous block, resulting in all the free memory aggregated into in a single block.
9. In the Dynamic Partitioning technique of memory management, the first-fit placement algorithm scans memory from the location of the last placement and chooses the first available block it finds that satisfies the request.
10. The Buddy System is a reasonable compromise to overcome the disadvantages of both the fixed and variable partition schemes.
11. A physical memory address is a reference to a memory location independent of the current assignment of data to memory.
12. A memory system employing paging may suffer slightly from internal fragmentation and experiences no external fragmentation.
13. In a memory system employing paging, the chunks of a process (called frames) can be assigned to available chunks of memory (called pages).
14. A memory system employing segmentation may suffer slightly from external fragmentation and experience no internal fragmentation.
15. A memory system employing segmentation consists of a number of user program segments that must be of the same length and have a maximum segment length.

Multiple Choice Questions:

1. The task of subdividing memory between the O/S and processes is performed automatically by the O/S and is called:
 - a. Protection
 - b. Relocation
 - c. Memory Management
 - d. All of the above

2. The concept of Memory Management satisfies certain system requirements, including:
 - a. Protection
 - b. Relocation
 - c. Physical organization
 - d. All of the above
3. The practice in which a program and data are organized in such a way that various modules can be assigned the same region of memory is called:
 - a. Overlaying
 - b. Sharing
 - c. Relocation
 - d. None of the above
4. The concept of virtual memory is based on one or both of two basic techniques:
 - a. Overlaying and relocation
 - b. Segmentation and paging
 - c. Segmentation and partitioning
 - d. None of the above
5. A problem with the largely obsolete Fixed Partitioning memory management technique is that of:
 - a. Allowing only a fixed number of Processes
 - b. Inefficient use of memory
 - c. Internal fragmentation
 - d. All of the above
6. The problem of internal fragmentation can be lessened in systems employing a fixed-partition memory management scheme by using:
 - a. Random size partitions
 - b. Equal size partitions
 - c. Unequal size partitions
 - d. None of the above
7. In the Dynamic Partitioning technique of memory management, the phenomenon that results in unused blocks of memory outside of existing partitions is called:
 - a. Internal fragmentation
 - b. External fragmentation
 - c. Compaction
 - d. None of the above
8. In the Dynamic Partitioning technique of memory management, the placement algorithm that chooses the block that is closest in size to the request is called:
 - a. Best-fit
 - b. First-fit
 - c. Next-fit
 - d. All of the above
9. In the Dynamic Partitioning technique of memory management, the placement algorithm that scans memory from the location of the last placement and chooses the next available block that large enough to satisfy the request is called:
 - a. Best-fit
 - b. First-fit

- c. Next-fit
 - d. All of the above
10. A reference to a memory location independent of the current assignment of data to memory is called a(n):
- a. Relative address
 - b. Logical address
 - c. Absolute address
 - d. None of the above
11. An actual location in main memory is called a(n):
- a. Relative address
 - b. Logical address
 - c. Absolute address
 - d. None of the above
12. The page table for each process maintains:
- a. The frame location for each page of the process
 - b. The page location for each frame of the process
 - c. The physical memory location of the process
 - d. None of the above
13. In a system employing a paging scheme for memory management, wasted space is due to:
- a. External fragmentation
 - b. Internal fragmentation
 - c. Pages and frames of different specified sizes
 - d. None of the above
14. In a system employing a segmentation scheme for memory management, wasted space is due to:
- a. External fragmentation
 - b. Internal fragmentation
 - c. Segments of different sizes
 - d. None of the above
15. In a system employing a segmentation scheme for memory management, a process is divided into:
- a. One segment per thread
 - b. A number of segments which must be of equal size
 - c. A number of segments which need not be of equal size
 - d. None of the above

Fill-In-The-Blank Questions:

1. The task of subdividing memory between the O/S and processes is performed automatically by the O/S and is called _____.
2. The Memory Management task of moving the process image between different areas of memory as required to support swapping is referred to as _____.
3. The practice in which a program and data are organized in such a way that various modules can be assigned the same region of memory is called _____.

4. In almost all modern multiprogramming systems, memory is managed using a sophisticated technique known as _____.
5. The phenomenon, in which there is wasted space internal to a partition due to the fact that the block of data loaded is smaller than the partition, is referred to as _____.
6. The problem of internal fragmentation can be lessened in system employing a fixed-partition memory management scheme by using _____ partitions.
7. In the Dynamic Partitioning technique of memory management, the process of shifting processes so they occupy a single contiguous block in memory is called _____.
8. In the Dynamic Partitioning technique of memory management, the placement algorithm that chooses the block that is closest in size to the request is called _____.
9. In the Dynamic Partitioning technique of memory management, the phenomenon that results in unused blocks of memory outside of existing partitions is called _____.
10. Programs that employ _____ addresses in memory are loaded using dynamic run-time loading.
11. A compromise between the fixed and dynamic partitioning schemes for memory management that employs aspects of both is called the _____.
12. In a system that employs a paging memory management scheme, the _____ shows the frame location for each page of the process.
13. In a system that employs a paging memory management scheme, the chunks of a process can be assigned to available chunks of memory, which are called _____.
14. A system that employs a segmentation memory management scheme makes use of a _____, that provides the starting address of the corresponding segment in main memory.
15. A system that employs a segmentation memory management scheme, the program and its associated data are divided into a number of _____ that need not be of the same length.