MCQs on Sorting Algorithms

1. What is sorting?

A) Searching elements in a list
B) Arranging elements in a particular order
C) Deleting elements from a list
D) Copying elements from a list

Answer: B

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2. Which of the following is the simplest sorting algorithm?

A) Merge Sort
B) Quick Sort
C) Bubble Sort
D) Heap Sort

Answer: C

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3. Which sorting algorithm works by repeatedly swapping adjacent elements if they are in the wrong order?

A) Selection Sort
B) Bubble Sort
C) Merge Sort
D) Heap Sort

Answer: B

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4. Which algorithm selects the smallest element and places it at the beginning?

A) Bubble Sort
B) Selection Sort
C) Quick Sort
D) Heap Sort

Answer: B

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5. Which sorting algorithm inserts elements into their correct position in the sorted part?

A) Insertion Sort
B) Merge Sort
C) Heap Sort
D) Quick Sort

Answer: A

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6. Which algorithm uses the Divide and Conquer technique?

A) Bubble Sort
B) Selection Sort
C) Merge Sort
D) Insertion Sort

Answer: C

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7. Which sorting algorithm uses a pivot element?

A) Heap Sort
B) Quick Sort
C) Selection Sort
D) Bubble Sort

Answer: B

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8. Which sorting algorithm uses a binary heap data structure?

A) Merge Sort
B) Quick Sort
C) Heap Sort
D) Bubble Sort

Answer: C

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9. What is the best case time complexity of Bubble Sort?

A) $O(n^2)$
B) O(n log n)
C) O(n)
D) O(log n)

Answer: C

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10. What is the worst case time complexity of Quick Sort?

A) O(n)
B) O(n log n)
C) $O(n^2)$
D) O(log n)

Answer: C

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11. What is the time complexity of Merge Sort?

A) $O(n^2)$
B) O(n log n)
C) O(n)
D) O(log n)

Answer: B

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12. Which sorting algorithm is stable?

A) Quick Sort
B) Heap Sort
C) Selection Sort
D) Merge Sort

Answer: D

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13. Which sorting algorithm requires extra memory?

A) Merge Sort
B) Heap Sort

C) Selection Sort
D) Bubble Sort

Answer: A

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14. Which sorting algorithm is in-place?

A) Merge and Bubble
B) Heap and Merge
C) Heap and Bubble
D) Bubble and Merge

Answer: C

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15. Which sorting algorithm is best for small datasets?

A) Quick Sort
B) Merge Sort
C) Insertion Sort
D) Heap Sort

Answer: C

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16. Which sorting algorithm has O(n log n) complexity in all cases?

A) Quick Sort
B) Merge Sort
C) Bubble Sort
D) Selection Sort

Answer: B

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17. Which algorithm repeatedly compares adjacent elements?

A) Selection Sort
B) Bubble Sort
C) Heap Sort
D) Merge Sort

Answer: B

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18. Which sorting algorithm is not stable?

A) Merge Sort
B) Insertion Sort
C) Quick Sort
D) Bubble Sort

Answer: C

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19. Which sorting algorithm works similar to arranging playing cards?

A) Bubble Sort
B) Insertion Sort
C) Heap Sort
D) Merge Sort

Answer: B

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20. Which sorting algorithm is generally fastest in practice?

A) Bubble Sort
B) Selection Sort
C) Quick Sort
D) Insertion Sort

Answer: C