5 Lecture - CS502

Important Mcqs

1. **Which of the following is a linear time sorting algorithm?**
   a) Quick sort
   b) Merge sort
   c) Counting sort
   d) Selection sort
   Answer: c) Counting sort

   Which of the following is not a linear time sorting algorithm?
   a) Bucket sort
   b) Radix sort
   c) Quick sort
   d) All of the above
   Answer: c) Quick sort

   What is the worst-case time complexity of counting sort?
   a) O(n)
   b) O(n log n)
   c) O(n^2)
   d) It depends on the input
   Answer: a) O(n)

   Which of the following sorting algorithms is not comparison-based?
   a) Bucket sort
   b) Radix sort
   c) Quick sort
   d) All of the above
   Answer: d) All of the above

   Which of the following is an advantage of linear time sorting algorithms?
   a) They have a faster runtime than comparison-based sorting algorithms.
   b) They work for all types of data.
   c) They have a lower memory usage than comparison-based sorting algorithms.
   d) They are more accurate than comparison-based sorting algorithms.
   Answer: a) They have a faster runtime than comparison-based sorting algorithms.

   Which of the following sorting algorithms is based on dividing elements into buckets?
   a) Counting sort
   b) Radix sort
   c) Bucket sort
   d) Selection sort
   Answer: c) Bucket sort

   Which of the following sorting algorithms is based on comparing digits or characters?
   a) Counting sort

b) Radix sort
c) Bucket sort
d) Selection sort
Answer: b) Radix sort

Which of the following sorting algorithms requires additional memory for the buckets?
a) Counting sort
b) Radix sort
c) Bucket sort
d) Selection sort
Answer: c) Bucket sort

Which of the following is an example of an input that counting sort cannot sort in linear time?
a) An array of integers
b) A string of characters
c) A binary tree
d) A linked list
Answer: b) A string of characters

Which of the following is not a stable sorting algorithm?
a) Counting sort
b) Radix sort
c) Bucket sort
d) Selection sort
Answer: d) Selection sort