CSE:221 Section:1

1st Quiz

Marks:30, Time:30 Minutes

1. Write down the psedo-code of heap-sort algorithm for sorting an array in ascending order.

2. Consider the following pseudo-code. Estimate the time complexity using BIG-OH notation. You need to answer the follwing queries.

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| function factorial(n)  {  if (n==0)  return 1;  else  return n \* factorial(n-1);  } |

(i) What is the recurrence relation in terms of input size n?

(ii) Solve the above relation using Recurrence-Tree method.

(ii) Mention the number of nodes at the bottom level, no. of levels and height of the tree with respect to n.

3. Compare Merge-Sort and Selection-Sort in terms of following properties.

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|  | Strategy | | | Time-Complexity | Space Complexity | Stability | In/Out Place |
| Merge-Sort | Divide & Conquer Approach | | | TM(n)= |  |  |  |
| Divide | Conquer | Combine | TM(n)= |
|  |  |  | TM(n)= |
| Selection-Sort | Incremental Approach | | | TS(n)= |  |  |  |
| TS(n)= |
| TS(n)= |