GATE 2024 CSE Daily Practice Questions

Question 1: How many comparisons are needed to sort an array of length 5 if a straight selection sort is used and array is already in the opposite order?

A: 1

B: 10

C: 15

D: 20

Question 2: Consider the string abbccddeee. Each letter in the string must be assigned a binary code satisfying the following properties:

For any two letters, the code assigned to one letter must not be a prefix of the code assigned to the other letter.

For any two letters of the same frequency, the letter which occurs earlier in the dictionary order is assigned a code whose length is at most the length of the code assigned to the other letter.

Among the set of all binary code assignments which satisfy the above two properties, what is the minimum length of the encoded string?

A: 21

B: 23

C: 25

D: 30

Question 3: Huffman tree is constructed for the following data:{A, B, C, D, E} with frequency {0.17, 0.11, 0.24, 0.33, and 0.15} respectively. 100 00 01101 is decoded as

A: BACE

B: CADE

C: BAD

D: CADD

Question 4: If a message of 100 characters over X is encoded using Huffman coding, then the expected length of the encoded message in bits is_____

A: 225

B: 115

C: 275

D: 315

Question 5: Suppose P, Q, R, S, and T are sorted sequences having lengths 20, 24, 30, 35, and 50 respectively. They are to be merged into a single sequence by merging together two sequences at a time. The number of comparisons that will be needed in the worst case by the optimal algorithm for doing this is ____.

A: 362

B: 358

C: 456

D: 320