

PES UNIVERSITY

Department of Computer Science and Engineering

UE19CS251: Design and Analysis of Algorithms (4-0-0-4-4)

Unit 4:

Question Bank-Space and Time Tradeoffs

1. What is the concept of Time and Space Trade-off? List the different techniques that helps to improve the time efficiency.
2. Assuming that the set of possible list values is $\{a, b, c, d\}$, sort the following list in alphabetical order by the distribution-counting algorithm: b, c, d, c, b, a, a, b
3. Define Input enhancement and Prestructuring.
4. Explain the method for making the “Shift Table” used by Horspool and Boyer-Moore algorithm.
5. Write Horspool Algorithm for String matching. Trace the algorithm to find the pattern “ELECTION” in the text “EDUCATION_ONLY_HELPES_IN_SELECTION”.
6. In Boyer-Moore algorithm, explain when to use bad-symbol table and good-suffix table with suitable illustrations.
7. a) Construct the shift table for the following gene segment of your chromosome 10: TCCTATTCTT
b) Apply Horspool’s algorithm to locate the above pattern in the following DNA sequence: TTATAGATCTCGTATTCTTTATAGATCTCCTATTCTT
8. Apply Boyers-Moore algorithm to search for the pattern AT_THAT in the text WHICH_FINALY_HALTS.__AT_THAT.

