FYBSC CS/SEM II/REG/Design and Analysis of Algorithms

Marks:30

Time: 1 hr.

Note:
1. Draw neat diagrams wherever necessary.
2. Figures to the right indicate full marks.
3. All questions are compulsory with internal options.

Q.1 **Answer the following (Any 2 out of 4).** [10]

(a) Define an algorithm and explain its key characteristics.
(b) What are the types of complexity in algorithm analysis?
(c) Define a data structure and explain its importance in computer science.
(d) Compare Array and List

Q.2 **Answer the following (Any 2 out of 4).** [10]

(a) Define Algorithm Design Techniques and explain their importance in problem-solving.
(b) Describe the Brute Force Method for string pattern matching.
(c) Discuss the advantages and disadvantages of Linear Search
(d) Define the Divide-and-Conquer approach and explain its concept.

Q.3 **Answer the following (Any 2 out of 4).** [10]

(a) What are the different types of data structures?
(b) Compare Bubble Sort, Selection Sort, and Insertion Sort
(c) What is Backtracking Programming? Explain its basic concept.
(d) Discuss the application of Dynamic Programming in field of computer science

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