



**UNIVERSITY OF NORTH BENGAL**

B.Sc. Honours 4th Semester Examination, 2021

**CC8-COMPUTER SCIENCE (41)**

**DESIGN AND ANALYSIS OF ALGORITHMS**

Full Marks: 40

**ASSIGNMENT**

*The figures in the margin indicate full marks.*

**Answer any two of the following**

20×2 = 40

1. (a) What are the steps in the design of an algorithm? Explain by taking a suitable example. 10
- (b) What do you mean by asymptotic notation? Define  $\Omega$  - notation,  $O$  – notation and  $\theta$  - notation with examples. 10
2. (a) What is the principle difference between the divide and conquer technique and dynamic programming technique? 10
- (b) Discuss briefly about Greedy Algorithm Technique. 10
3. (a) Write an Algorithm of searching an element in Red Black tree. Explain it with one suitable example. 10
- (b) Draw a Decision tree and find the number of key comparisons in the worst and average cases for the three element of Bubble sort. 10
4. (a) Discuss the working of Radix Sort technique with an example. Also explain its complexity. 10
- (b) Write the difference between Binary and Linear search. 10

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