



বিদ্যাসাগর বিশ্ববিদ্যালয়  
VIDYASAGAR UNIVERSITY  
Question Paper

**B.Sc. Honours Examinations 2022**

(Under CBCS Pattern)

**Semester - IV**

**Subject : COMPUTER SCIENCE**

**Paper : C 8 - T**

[ DESIGN AND ANALYSIS OF ALGORITHMS ]

**Full Marks : 40**

**Time : 2 Hours**

*Candidates are required to give their answers in their own words as far as practicable.*

*The figures in the margin indicate full marks.*

**Group - A**

Answer any **four** questions :

5×4=20

1. Differentiate between algorithm and program. Write down the characteristics of algorithm. 2+3
2. Define correctness of an algorithm. What is instance of a problem? 3+2
3. Why finding efficiency of an algorithm is essential? Define time complexity analysis of algorithm. 2+3

P.T.O.

4. How to implement a Max heap with an array. Write down the property of max heap. 3+2
5. Explain the division method of array into sub array used in Quick sort. 5
6. How collision occurs during Hashing? Explain a method to resolve such collision. 2+3

**Group - B**

Answer any *two* questions : 10×2=20

1. What do you understand by asymptotic analysis? Briefly discuss asymptotic, tight bound and asymptotic upper bound. 2+(4+4)
  2. Write and explain merge sort algorithm. 10
  3. Define multi graph. Compare BFS with DFS. 2+8
  4. What is spanning tree? Explain Kruskal's algorithm of finding minimum spanning tree with a proper example. 2+8
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