



Bangladesh Army University of Engineering & Technology (BAUET)

Department of Computer Science and Engineering (CSE)

Course Title: Data Structure and Algorithms II Course Code: CSE-2213

2nd Year 2nd Semester Batch: 16th CT-1 Summer-24

Marks: 15

Time: 30 Mins

Marks

Q1. Explain Asymptotic analysis of an algorithm with an example. And demonstrate the following rate of growth in increasing order. 2^N , $n \log n$, n^2 , $n!$, $\log n$, n , n^3 . [CO-3, PO-3, C2, KP-5]

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Q2. Solve the recurrence relation using master theorem

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$$T(n) = 9 T(n/3) + n$$

OR

Solve the recurrence relation using substitution method.

$$T(n) = 2T(n/2) + n$$

[CO-3, PO-3, C2, KP-5]

Q3. Prepare the sorted list using Quick sort algorithm for the following example

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25,36,12,4,5,16,58,54,24,16,9,65,78

And identify Worst case and Average Case Complexity. [CO-3, PO-3, C2, KP-5]