

End Semester Examination

May-June 2023

CET3016B - Analysis of Algorithms

Schedule ID: 18394

Faculty/School	Faculty of Engineering & Technology	Term	VI
Program	Third Year B. Tech	Duration	1 Hours 30 Minutes
Specialization		Max. Marks	40

Read the instructions provided for every question properly before attempting the answer.

Section - 1 : contain(s) **10** question(s) and each question carries **5** mark(s). You can answer any **8** questions out of **10**.

Click **Finish** only after completion of the Exam.

Section - 1 (8 X 5 Marks)

Answer any 8 questions

1	Explain Asymptotic Notations. Find upper bound of running time of a linear function $f(n) = 6n + 3$	5 marks	CO1	Applying
2	Solve the following using Huffman coding algorithm where char A is having frequency 10, E is having frequency 15, I is having frequency 12, S is having frequency 3, T is having frequency 4, P is having frequency 13 and char \n is having frequency 1.	5 marks	CO2	Applying
3	Distinguish between Dynamic programming and Divide and conquer technique.	5 marks	CO1, CO2	Understanding
4	Solve the 0/1 Knapsack problem by using Dynamic Programming . $N = 3$, $w = (4, 6, 8)$, $p = (10, 12, 15)$, Knapsack capacity $M = 10$.	5 marks	CO2	Applying
5	Describe five disadvantages of backtracking strategy.	5 marks	CO3	Understanding
6	Solve 0/1 Knapsack Problem using LC-BB. profit = (10, 10, 12, 18), weights = (2, 4, 6, 9), knapsack capacity = 15.	5 marks	CO4	Applying
7	Discuss the merits and demerits of LC and FIFO branch and bound approach to solve a problem.	5 marks	CO3	Understanding
8	Differentiate between NP-complete and NP-hard problems.	5 marks	CO4	Analysing

9	Prove that vertex cover problem is NP-complete.	5 marks	CO4	Evaluating
10	Define non-deterministic algorithms. Explain non-deterministic searching algorithm.	5 marks	CO4	Understanding

END OF QUESTION PAPER