Seat No.:		Q. Paper Code:FTC-A-002	SET	A

Fabtech Technical Campus, College of Engineering & Research, Sangola

(An Autonomous Institute)

Computer Science and Engineering

Academic Year: -2025-26, Semester-I

Applied Algorithm (25PCS11171)

Regular End Semester Examination Winter 2025-26 [Dec. / Jan.]

Class:	F. Y. M. Tech.	Day & Date:	Thursday, 01/01/2026
Duration:	03 Hrs.	Max. Marks:	60 Marks
Time:	11:00 AM TO 02:00 PM		

Instructions:
1) All Questions are compulsory.
2) Figures to the right indicate full marks.
3) Draw neat diagram wherever necessary.
4) Make suitable assumptions if necessary and state it clearly.
5) Use of non-programmable calculator is allowed.

Q. No.	Questions	Marks	CO	BL
Q. 1	Attempt any two of the following	12		
1	Describe the Asymptotic notation with diagram .	6	1	2
2	Solve using Master Method: i)$T(n) = 2T(n/2) + n$ ii) $T(n) = T(n/2) + 1$	6	1	4
3	Demonstrate the amortized analysis. Give one example where it is used .	6	1	2
Q. 2	Attempt any two of the following	12		
1	Explain Prim's and Krushkal's algorithm in detail.	6	2	2
2	Implement the Huffman coding with example.	6	2	3
3	Explain the Dijkstra's algorithm working with example .	6	2	2
Q. 3	Attempt any two of the following	12		
1	Describe optimal binary search tree .	6	3	2
2	Explain Floyd–Warshall algorithm in detail .	6	3	3
3	Describe the Johnson algorithm in detail.	6	3	2
Q. 4	Attempt any two of the following	12		

1	Explain any two NP-complete problems .	6	4	2
2	Demonstrate the basic idea of an approximation algorithm.	6	4	3
3	Implement the Sum of Subset Problem with example .	6	4	3
Q. 5	**Attempt any two of the following**	12		
1	Explain RSA in detail .	6	5	2
2	Discuss string matching algorithm.	6	5	2
3	Implement Las Vegas algorithms .	6	5	3