Rubrics- MidSem

1.

	Marks
Reading Instructions	1

2. No partial Marking for this question.

	Marks
Q1- log(log n)	3
Q2- log(log n). log n	3
Q3- n $\log^2 n$	3

3.

Part no.	Marks
Part 1	(1 marks) Algorithm with running time O(n) or O(sqrt(n)) (3 marks) Algorithm with running time bounded by O(log n). Some marks shall be deducted if a suitable explanation is not provided.
Part 2	(2 marks) Brute force solution. Iterating over all values of 'b', till a^b is less than or equal to 'n', for all values of 'a' (2 <= a <= n or sqrt(n)) (2 marks) Checking if for 'b' (2 <= b <= log2(n)) there exists any 'a' using linear search (5 marks) Checking if for 'b' (2 <= b <= log2(n)) there exists any 'a' using binary search. Some marks shall be deducted if a suitable explanation is not provided.
Part 3	(1 marks) O(log(n)) (0 marks) otherwise
Part 4	(1 marks) Correctly specify the running time of 'your' proposed solution in part 2 (0 marks) If specified running time does not match the proposed solution.

4.

	Marks
Part a: Correct algorithm for optimal cost	4, 3, 2, 0 depending on level of correctness
Part a: Correct algorithm to print optimal parenthesization	2, 1, 0 depending on level of correctness
Part b: Optimal Substructure and recursive calculation	2, 1, 0 depending on level of correctness
Part b: Correct Explanation	1, 0
Part c: Correct Running time: DP solution: O(n^3)	1
Part c: Correct Running time: non DP solution	1
Part c: Incorrect/ Missing Running time	0
Brute force solution	1 marks for the whole question

If someone has written non-DP or non-O(n^3) solution, there should be a correct argument of correctness too with the algorithm.

5.

	Marks
Part 1:	O(n^2) Solution. (6 marks) O(n^2 log n) Solution (4 marks) O(n^3) Solution (2 Marks) Minor mistake in Algorithm (-1)
Part 2:	Correct Proof (2 Marks) Proof not Satisfactory(1 mark)
Part 3:	Correct Complexity with Proof(2 Marks) Complexity without Proof (1 Mark)