

**BIRLA INSTITUTE OF TECHNOLOGY, MESRA, RANCHI  
(MID SEMESTER EXAMINATION)**

**CLASS: BTECH  
BRANCH: MECH,EC,EEE**

**SEMESTER: VII  
SESSION: MO/2022**

**SUBJECT: CS206 DESIGN AND ANALYSIS OF ALGORITHM**

**TIME: 2 HOURS**

**FULL MARKS: 25**

**INSTRUCTIONS:**

1. The total marks of the questions are 25.
  2. Candidates attempt for all 25 marks.
  3. Before attempting the question paper, be sure that you have got the correct question paper.
  4. The missing data, if any, may be assumed suitably.
  5. Tables/Data hand book/Graph paper etc. to be supplied to the candidates in the examination hall.
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			<b>CO</b>	<b>BL</b>
Q1	(a) Describe different asymptotic notations.	[2]	2	BL-1 and BL-2
Q1	(b) Find the best and worst case time complexity of Insertion Sort.	[3]	1	BL-2 and BL-3
Q2	(a) Discuss the 'Divide and conquer' paradigm of problem solving.	[2]	2	BL-1
Q2	(b) Find the Time Complexity of Binary Search and Merge Sort algorithms.	[3]	3	BL-4
Q3	(a) Illustrate the AVL Tree.	[2]	2	BL-1 and BL-2
Q3	(b) Explain the Recursion Tree and Master Theorem.	[3]	3	BL-2 and BL-3
Q4	(a) Write any algorithm to find the 'All-pair Shortest Path'.	[2]	4	BL-1, BL-2, and BL-3
Q4	(b) How you can solve efficiently the 'Travelling Salesperson Problem'?	[3]	4	
Q5	(a) What is optimal BST?	[2]	3,4	BL-1 and BL-2
Q5	(b) Define 'Transform and conquer' paradigm with suitable example.	[3]	3,4	BL-2 and BL-3

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