


		Reg. No.:	
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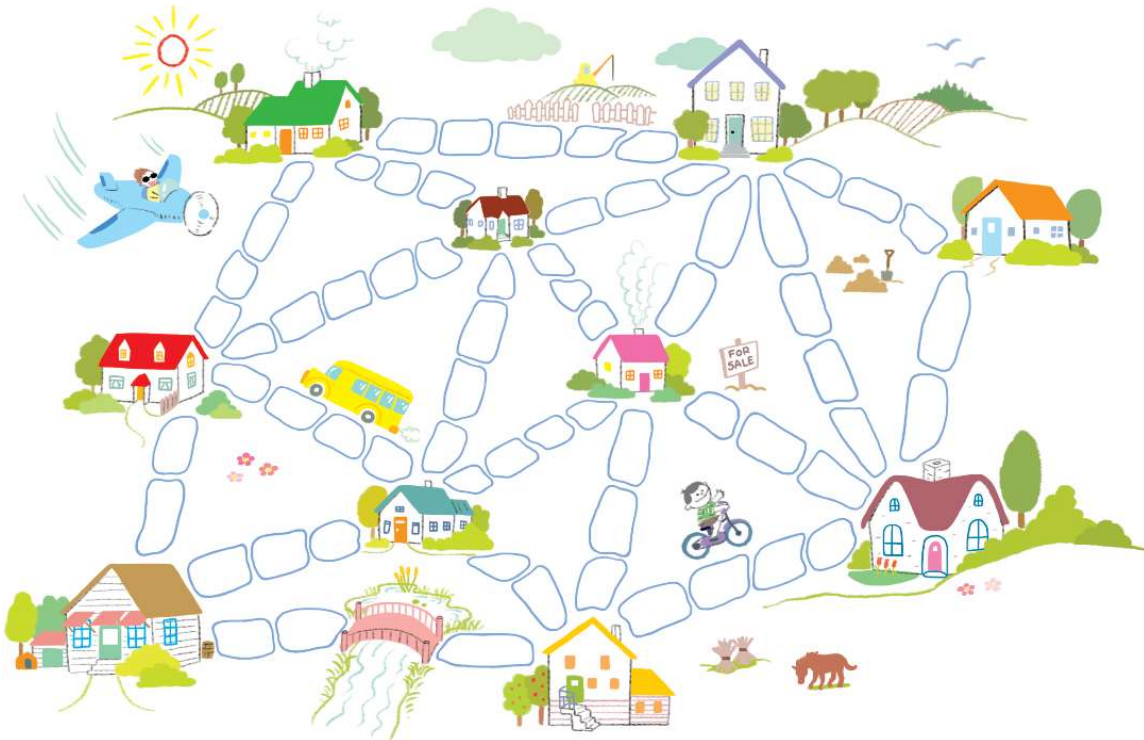


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Mid-Term Examinations – October 2021			
Programme	: B.Tech (BAI, BCE, MIM)	Semester	: Fall 2021-22
Course	: Design and Analysis of Algorithm	Code	: CSE3004
Faculty	: Dr. Muneeswaran V	Slot/ Class No.	: E21+E22+E23/0287
Time	: 1 ½ hours	Max. Marks	: 50

Answer all the Questions			
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Q.No.	Question Description	Marks														
1	<p>According to a well-known legend, the game of chess was invented many centuries ago in north western India by a certain sage. When he took his invention to his king, the king liked the game so much that he offered the inventor any reward he wanted. The inventor asked for some grain to be obtained as follows: just a single grain of wheat was to be placed on the first square of the chessboard, two on the second, four on the third, eight on the fourth, and so on,</p> <p>a) Write a recursive algorithm to add all the grains he got</p> <p>b) How long would it take the inventor asked for adding all the grains upto ‘n’ square. i.e., Find the recurrence relation and solve it.</p>	5 5														
2	<p>A computer scientist wants to construct the optimal binary search tree with his programming solutions made by the various programming languages as shown in the following table, use dynamic programming technique to construct the optimal binary search tree with the pseudo code:</p> <table border="1" style="margin: 10px auto; width: 80%;"> <tr> <td>Keys</td> <td>ADA</td> <td>BASIC</td> <td>COBOL</td> <td>FORTRAN</td> <td>JAVA</td> <td>Python</td> </tr> <tr> <td>No. of Solutions</td> <td>731</td> <td>548</td> <td>1050</td> <td>639</td> <td>822</td> <td>776</td> </tr> </table>	Keys	ADA	BASIC	COBOL	FORTRAN	JAVA	Python	No. of Solutions	731	548	1050	639	822	776	10
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3	<p>A City, where the roads get too muddy to use when it rains. The mayor decided to pave some of the streets, but did not want to spend more money than necessary. Such that everyone can travel from their house to anyone else’s house using only paved roads. Each street is made up of a certain number of stones. The number of stones represents the cost of paving that street. Solve this problem with a greedy design technique and write the pseudo code also.</p>	10														

		
4	Write a pseudocode for Naïve String matching algorithm to find all possible pattern in a given string. Using this algorithm to search for the all possible pattern “ISS” in the given text “BLISSY_KISS_LEISSY” with step by step results and find the time complexity using your pseudocode.	10
5	Construct the Suffix tree for the following gene segment of your chromosome 10: “TCCTATTCTT”. Need step by step results.	10
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