

Subject

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Code:-

Subject:-

Fundamentals of Computers and IT

Roll No:-

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TECNIA INSTITUTE OF ADVANCED STUDIES

MCA

Class Test (2025-26)

Sem: Ist

Set-1

Date:

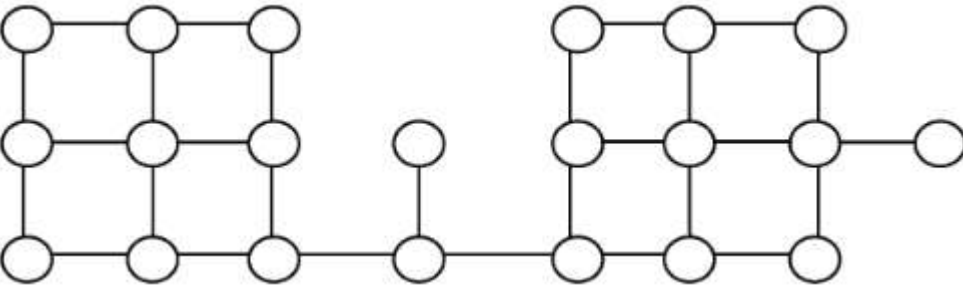
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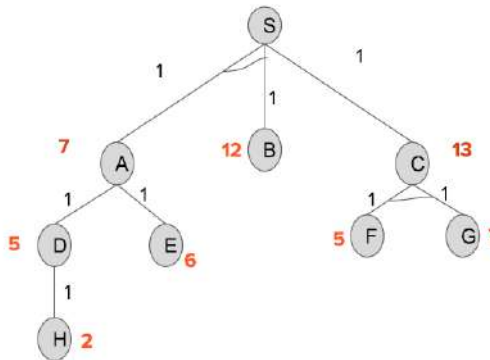
Time: -1:00 Hours

Max. Marks: 30

General Instructions:

- All Questions are compulsory. Answers should be brief and to the point.
- It comprises three sections, A, B, and C. You are to attempt all the sections.
- **Section A** – Question No -1 is Very Short Answers type carrying 2 marks each. You are required to answer ALL.
- **Section B**- Question No-3 is Short Answers type question carrying 5 marks each. You are required to attempt any TWO out of THREE questions given.
- **Section C**- Question No -4 is Long Answer type question carrying 10 marks each. You need to attempt anyone.
- Students are instructed to cross the blank sheets before handing over the answer sheet to the invigilator.
- No sheet should be left blank. Any written material after a blank sheet will not be evaluated /checked.

		CO	BT	M
	SECTION –A			(10)
1.	Attempt All of the following.			(5*2=10)
	a. i. Explain the ways in which artificial intelligence can function both as software and as a platform. ii. How does artificial intelligence relate to data analytics? Give Examples of reactive machine AI.	CO1	L1,L2	
	b. i. Which traversal algorithm used as a stack data structure and why? ii. Regarding implementation of Breadth First Search using queues, what is the maximum distance between two nodes present in the queue? (considering each edge length 1).	CO1	L1,L3	
	c. Suppose depth first search is executed on the graph below starting at some unknown vertex. Assume that a recursive call to visit a vertex is made only after first checking that the vertex has not been visited earlier. Find the maximum possible recursion depth (including the initial call)? 	CO1	L1,L3	
	d. What is the difference between Logistic regression and classification?	CO3	L1,L2,L3	

	e. Why is A* search algorithm better than A?	CO3	L1,L2																							
SECTION –B																										
2.	Answer any <u>Two</u> of the following.			(2*5=10)																						
	<p>a. Find Revised Cost of this A*Search</p> 	CO1	L2,L3																							
	b. Explain Hill climbing Search Technique with example.	CO1	L1,L2																							
	c. Illustrate the criteria for the Turing Test, along with its historical significance and the predictions associated with it.		L1,L2																							
SECTION –C																										
3.	Answer any <u>One</u> of the following.			(1*10=10)																						
	<p>a. Find Best line fit from this timeseries dataset and plot the line.</p> <table border="1" data-bbox="259 934 1161 1060" style="margin-left: auto; margin-right: auto;"> <tr> <td>x_i</td> <td>8</td> <td>3</td> <td>2</td> <td>10</td> <td>11</td> <td>3</td> <td>6</td> <td>5</td> <td>6</td> <td>8</td> </tr> <tr> <td>y_i</td> <td>4</td> <td>12</td> <td>1</td> <td>12</td> <td>9</td> <td>4</td> <td>9</td> <td>6</td> <td>1</td> <td>14</td> </tr> </table> <p style="text-align: center;">OR</p> <p>If a Covid test involving 1000 patients yielded 45 positive results, 30 confirmed, 15 incorrectly identified, and 5 erroneous, indicating those with Covid but received negative test results. Draw the confusion matrix and calculate the accuracy, precision, recall, sensitivity and F1 score from the matrix.</p>	x_i	8	3	2	10	11	3	6	5	6	8	y_i	4	12	1	12	9	4	9	6	1	14		L1,L2,L3	
x_i	8	3	2	10	11	3	6	5	6	8																
y_i	4	12	1	12	9	4	9	6	1	14																
	<p>b. i. What is a residual in Regression? Why is it important to analyze the residuals before assessing the goodness of a Regression Model? ii. What does it mean if Residuals are non-normal or non-random?</p>		L2,L3																							