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| **TERM END EXAMINATIONS (TEE) – August- September 2021** | | | | | | | | | | |
| **Programme** | | | **:** | **B. Tech, Computer Science and Engineering** | | **Semester** | | **:** | **Interim 2021-22** | |
| **Course Name** | | | **:** | **Artificial Intelligence** | | **Course Code** | | **:** | **CSE3007** | |
| **Faculty Name** | | | **:** | **Simi V.R.** | | **Slot / Class No** | | **:** | **C11/ 0040** | |
| **Time** | | | **:** | **1½ hours** | | **Max. Marks** | | **:** | **50** | |
| **Answer ALL the Questions** | | | | | | | | | | |
| **Q. No.** | **Question Description** | | | | | | | | | **Marks** |
| **PART - A (30 Marks)** | | | | | | | | | | |
| 1 | (a) | Demonstrate the working of any one of the Uninformed Search (Blind search) algorithms with a suitable example. | | | | | | | | 10 |
| OR | | | | | | | | | |
| (b) | Let X and Y be two fuzzy sets. X= {(1, 0.1), (2, 0.5), (3, 0.8), (4, 1), (5,0.6), (6,0.4), (7,.2)} and Y = {(1, 1), (2, 0.8), (3, 0.4), (4, 0.1), (5,0.6), (6,0.4), (7,0.2)}. Perform union and intersection operations on these fuzzy sets. Explain the characteristics of fuzzy membership functions. | | | | | | | | 10 |
| 2 | (a) | With the help of real-world examples, explain Supervised learning, unsupervised learning and Reinforcement learning. | | | | | | | | 10 |
| OR | | | | | | | | | |
| (b) | Find the equation of the Linear regression line and Mean Squared Error (MSE) for the following set of values: (23,21), (24,25), (25,29), (26,27), (27,24). | | | | | | | | 10 |
| 3 | (a) | With neat diagram explain the architecture and working of a Multilayer Feedforward Network (MFN). | | | | | | | | 10 |
| OR | | | | | | | | | |
| (b) | Illustrate the working of Hierarchical Agglomerative Clustering algorithm on the data given below.  D = {e, f, g, h, i, j, k, l, m, n, o} | | | | | | | | 10 |
| **PART - B (20 Marks)** | | | | | | | | | | |
| 4 | | Perform Depth-First Search (DFS) on the graph given in Figure 1. Find three different solutions. What kind of Data Structure (DS) is used to store the vertices of the graph in a DFS algorithm? Compare and contrast DFS and BFS.    Figure 1 | | | | | | | | 10 |
| 5 | | Figure 2 is a diagram of a single artificial neuron with three inputs.      Figure 2  Suppose that the weights corresponding to the three inputs have the following values: w1 = 2, w2 = −4, w3 = 1. The activation of the unit is given by the step-function:    Calculate what will be the output value y of the unit for each of the following input patterns given in Table 1:  Table 1 | | | | | | | | 10 |
| ⇔⇔⇔ | | | | | | | | | | |