**14EC804A**

**Hall Ticket Number:**

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| **IV/IV B.Tech (Regular / Supplementary) DEGREE EXAMINATION** | | | |
| **July, 2021** | **Electronics and Communication Engineering** | | |
| **Eight Semester** | **Neural Networks** | | |
| **Time:** Three Hours | | **Maximum:** 60 Marks | |
| *Answer ALL Questions from PART-A.* | | | (12X1 = 12 Marks) |
| *Answer* ***ANY FOUR*** *questions from PART-B.* | | | (4X12=48 Marks) |
| **Part - A** | | | |

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| 1. | Answer all questions | | (12X1=12 Marks) | |
|  | a) | Classify learning methods in Neural Networks. | |  |
|  | b) | Classify learning methods based on their rules. | |  |
|  | c) | Compare supervised and unsupervised learning methods. | |  |
|  | d) | What was the main point of difference between the Adaline & perceptron model? | |  |
|  | e) | When both inputs are 1, what will be the output of the pitts model nand gate? | |  |
|  | f) | Define classification. | |  |
|  | g) | Mention the algorithms can be used to train a single-layer feedforward network? | |  |
|  | h) | Mention the biggest difference between Widrow & Hoff’s Delta Rule and the Perceptron Learning Rule for learning in a single-layer feedforward network? | |  |
|  | i) | What are the limitations of back propagation algorithm | |  |
|  | j) | A Hopfield network has 20 units. How many adjustable parameters does this network contain? | |  |
|  | k) | Which application in intelligent mobile robots made use of a self-organizing feature map? | |  |
|  | l) | The performance measure used to find the resulting distortion in the image compression is\_\_\_\_. | |  |
| **Part - B** | | | | |
| 2. | a) | Compare the biological neural network with artificial neural network. | | 6M |
|  | b) | Discuss in detail about single layered and multi layered feed forward networks. | | 6M |
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| 3. | a) | Discuss on what parameters we evaluate Neural Networks. | | 6M |
|  | b) | Discuss about Hebbian learning. | | 6M |
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| 4. | a) | Discuss in detail about ADALINE. | | 6M |
|  | b) | Explain the algorithm of perceptron model. | | 6M |
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| 5. | a) | Describe the Mc-Culloch – pitt’s model of neuron | | 6M |
|  | b) | Discuss in detail about Delta learning | | 6M |
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| 6. | a) | What are the steps involved in the back propagation algorithm. Explain. | | 6M |
|  | b) | With the help of architecture explain the MAXNET training algorithm in detail | | 6M |
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| 7. | a) | Write short notes self-organization map algorithm. | | 6M |
|  | b) | With the help of architecture explain the ART-1 training algorithm in detail | | 6M |
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| 8. | a) | How a neural network can be used to process images? Explain. | | 6M |
|  | b) | Are neural networks useful in Healthcare? Justify your answer with suitable explanation. | | 6M |
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| 9. | a) | Explain the applications of Neural networks in Patten recognition with an example. | | 6M |
|  | b) | Explain the applications of Neural networks in control systems. | | 6M |

