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| **NRIA20** |

**Hall Ticket Number:**

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MODEL QUESTION PAPER

**20A3244511**

III B. Tech. II Semester Regular Examinations

**Deep Learning and Its Applications**

(Computer Science Engineering- Data Science)

**Time: 3 Hours Max. Marks: 70**

**------------------------------------------------------------------------------------------------------------**Question paper contains **FIVE** units

Answer one question from each unit

|  |  |  |  |  |  |  |  |
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| **Q.No.** | **Questions** | | **Marks** | **BTL** | **CO** | **PO** | **PI** |
|  |  | **UNIT I** | | | | | |
| **1.      a)** | Explain in detail Back Propagation Algorithm. | | **7M** | II | I | 1,2,3,4 | **1.2.1,1.2.2,2.7.1,72.7.2,3.6.1,3.6.2,3.6.3,4.6.1,4.6.2,4.6.3** |
|  | Discuss curse of dimensionality. | | **7M** | III | I | 1,2,3,4 | **1.2.1,1.2.2,2.7.1,72.7.2,3.6.1,3.6.2,3.6.3,4.6.1,4.6.2,4.6.3** |
|  |  | **OR** | | | | | |
| **2.      a)** | What is Gradient Descent explain stochastic gradient descent. | | **7M** | II | I | 1,2,3 | **1.2.1,1.2.2,2.7.1,72.7.2,3.6.1,3.6.2,3.6.3** |
|  | Briefly explain Maximum Likelihood Estimation. | | **7M** | II | I | 1,2,3 | **1.2.1,1.2.2,2.7.1,72.7.2,3.6.1,3.6.2,3.6.3** |
|  |  | **UNIT II** | | | | | |
| **3.      a)** | Explain in detail Width and Depth of neural networks. | | **7M** | **II** | II | **1,2,3,4** | **1.2.1,1.2.2,2.7.1,72.7.2,3.6.1,3.6.2,3.6.3,4.6.1,4.6.2,4.6.3** |
|  | Briefly discuss Restricted Boltzmann Machines. | | **7M** | **II** | **II** | **1,2,3** | **1.2.1,1.2.2,2.7.1,72.7.2,3.6.1,3.6.2,3.6.3** |
|  |  | **OR** | | | | | |
| **4.      a)** | Explain in detail Activation Functions. | | **7M** | **III** | **II** | **2,3,4** | **2,2.7.1,72.7.2,3.6.1,3.6.2,3.6.3,4.6.1,4.6.2,4.6.3** |
|  | Briefly explain Unsupervised Training of Neural networks. | | **7M** | **II** | **II** | **1,2,3,4,5** | **1.2.1,1.2.2,2.7.1,72.7.2,3.6.1,3.6.2,3.6.3,4.6.1,4.6.2,4.6.3** |
|  |  | **UNIT III** | | | | | |
| **5.      a)** | Briefly Explain Layers and filters. | | **7M** | **II** | **III** | **2,3,4,5** | **2,2.7.1,72.7.2,3.6.1,3.6.2,3.6.3,4.6.1,4.6.2,4.6.3,5.6.1,5.6.2** |
|  | Draw and Explain ResNet Architecture. | | **7M** | II | **III** | **1,2,3,4,5** | **1.2.1,1.2.2,2.7.1,72.7.2,3.6.1,3.6.2,3.6.3,4.6.1,4.6.2,4.6.3** |
|  |  | **OR** | | | | | |
| **6.      a)** | Explain in detail Convolution Neural Network Architecture. | | **7M** | **II** | **III** | **2,3,4,5** | **2,2.7.1,72.7.2,3.6.1,3.6.2,3.6.3,4.6.1,4.6.2,4.6.3,5.6.1,5.6.2** |
|  | Explain Transfer Learning Techniques. | | **7M** | II | **III** | **1,2,3,4,5** | **1.2.1,1.2.2,2.7.1,72.7.2,3.6.1,3.6.2,3.6.3,4.6.1,4.6.2,4.6.3** |
|  |  | **UNIT IV** | | | | | |
| **7.      a)** | Differences between Recurrent Neural Networks and Simple Neural Network. | | **7M** | II | IV | 1,2,3,4 | **1.2.1,1.2.2,2.7.1,72.7.2,3.6.1,3.6.2,3.6.3,4.6.1,4.6.2,4.6.3** |
|  | Explain in detail Back Propagation through time(BPTT). | | **7M** | III | IV | 1,2,3,4 | **1.2.1,1.2.2,2.7.1,72.7.2,3.6.1,3.6.2,3.6.3,4.6.1,4.6.2,4.6.3** |
|  |  | **OR** | | | | | |
| **8.      a)** | Explain in detail Bidirectional RNNs. | | **7M** | II | IV | 1,2,3 | **1.2.1,1.2.2,2.7.1,72.7.2,3.6.1,3.6.2,3.6.3** |
|  | List and Explain types of RNN. | | **7M** | II | IV | 1,2,3 | **1.2.1,1.2.2,2.7.1,72.7.2,3.6.1,3.6.2,3.6.3** |
|  |  | **UNIT V** | | | | | |
| **9.      a)** | Discuss about Stochastic Encoders and Decoders. | | **7M** | **II** | **V** | **2,3,4,5** | **2,2.7.1,72.7.2,3.6.1,3.6.2,3.6.3,4.6.1,4.6.2,4.6.3,5.6.1,5.6.2** |
|  | Explain Regularized Auto Encoder. | | **7M** | II | **V** | **1,2,3,4,5** | **1.2.1,1.2.2,2.7.1,72.7.2,3.6.1,3.6.2,3.6.3,4.6.1,4.6.2,4.6.3** |
|  |  | **OR** | | | | | |
| **10.  a)** | Discuss in detail Boltzmann Machines. | | **7M** | **II** | **V** | **2,3,4,5** | **2,2.7.1,72.7.2,3.6.1,3.6.2,3.6.3,4.6.1,4.6.2,4.6.3,5.6.1,5.6.2** |
|  | Explain Deep Belief Networks. | | **7M** | II | **V** | **1,2,3,4,5** | **1.2.1,1.2.2,2.7.1,72.7.2,3.6.1,3.6.2,3.6.3,4.6.1,4.6.2,4.6.3** |

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