Code No: **22PC4CC01**  **HR-22**

**HYDERABAD INSTITUTE OF TECHNOLOGY & MANAGEMENT**

**(AUTONOMOUS)**

**B.Tech III Year II Semester Examinations, AUG-2024**

**Neural Networks and Deep Learning**

**(NNDL)**

**Time: 3 Hours** **Max. Marks: 60**

**Note:** 1. The Question paper contains Part-A and Part-B

2. Part-A carries 10 Marks. **Answer all Questions**

3. Part-B consists of 10 Questions. **Answer FIVE Questions**, each question carries 10 marks may have sub questions.

**PART-A :( 5 x 2 marks = 10)**

|  |  |  |
| --- | --- | --- |
| 1a) | List the different kinds of neural networks? | [2] |
| b) | What is Hebb's rule? | [2] |
| c) | What is Hetero Associative Memory Neural Network? | [2] |
| d) | What is Convolution layer? | [2] |
| e) | What is Vanishing Gradients? | [2] |
| f) | What is Gradient Descent? | [2] |
| g) | What is loss function? | [2] |
| h) | What is activation function? | [2] |
| i) | What is attention is ReLU? | [2] |
| j) | What is Autoencoder? | [2] |

**PART-B: (5 x 10 marks = 50)**

|  |  |  |
| --- | --- | --- |
| 2) | Briefly describe about the Neural Networks along with history? | [10] |
|  | (OR) |  |
| 3) | a) Discuss about the Single layer Perceptron along with example?  b) Discuss about the Multi layer Perceptron along with example and optimization technique? | [5+5] |
|  |  |  |
| 4) | a) Discuss about different learning rules along with examples for multi layer perceptron?  b) Discuss Associative memory network’s along with hetro and auto along with their implementations in our daily life? | [5+5] |
|  | (OR) |  |
| 5) | a) Compare Single Layer and Multi-Layer neural network, explain where they can be implemented in finance sector.  b) Explain about Back-propagation and how is it implemented in our daily life? | [5+5] |
| 6) | a) Briefly describe about CNN Architectures?  b) Disccuss about Hyper parameters in CNN? | [5+5] |
|  | (OR) |  |
| 7) | a) Explain about AlexNet architecture?  b) Explain about LeNet architecture? | [5+5] |
| 8) | a) Explain abou Sequence modeling using RNNs along with examples?  b) Explain about Exploding and Vanishing Gradients in RNNs? | [5+5] |
|  | (OR) |  |
| 9) | a) Explain about Long Short-Term Memory (LSTM) and its applicability, give examples?  b) Explain about Gated Recurrent Units, Bidirectional LSTMs along with examples? | [5+5] |
| 10) | a) Explain about Generative Adversarial Networks and it’s architectureure?  b) Explain about Discriminator, Discriminator Training Data and Training the Discriminator? | [5+5] |
|  | (OR) |  |
| 11) | a) List down 10 applications of LSTM?  b) List down 10 applications of CNN? | [5+5] |