Q.20 Differentiate between Machine Learning and Deep Learning (CO-1)

Q.21 What is text classification in NLP, and how is it implemented? (CO-4)

Q.22 What are some common techniques for evaluating and improving CNN performance ? (CO-2)

## SECTION-D

**Note:** Long answer type questions. Attempt any two questions out of three questions. (2x8=16)

Q.23 Explain the architecture and functionality of Recurrent Neural Networks (RNNs) and discuss their applications in various fields. (CO-3)

Q.24 Describe the key concepts and significance of Deep Learning in real-world applications? (CO-1)

Q.25 What are fine-tuning, transfer leaning, and hyperparameter tuning in the context of training CNNs ? (CO-2)



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**5th Sem. / Artificial Intelligence & Machine Learning**

**Subject : Deep Learning and its Applications**

Time : 3 Hrs. M.M. : 60

## SECTION-A

**Note:** Multiple choice questions. All questions are compulsory (6x1=6)

Q.1 What is a common variant of gradient descent ? (CO-2)

a) Decision Trees b) Linear Regression
c) K-means d) Adam

Q.2 What is the goal of text classification in NLP? (CO-4)

a) To translate text between languages
b) To categorize text into predefined classes
c) To summarize long texts
d) To extract keywords from text

Q.3 What type of data is deep learning particularly effective for ? (CO-1)

a) Structured data
b) Time-series data only
c) Unstructured data
d) Tabular data

Q.4 Which of the following is a common application of RNNs? (CO-3)

a) Natural language processing

b) Image classification

c) Clustering

d) Feature extraction

Q.5 Which activation function is commonly used in hidden layers of DNNs? (CO-1)

a) Sigmoid

b) ReLU (Rectified Linear Unit)

c) Softmax

d) Mean Squared Error

Q.6 Which layer is responsible for reducing the spatial dimensions of the input ? (CO-2)

a) Convolutional layer b) Activation layer

c) pooling layer d) Dropout layer

## SECTION-B

**Note:** Objective/ Completion type questions. All questions are compulsory. (6x1=6)

Q.7 Which programming language is widely used for deep learning development? (CO-1)

Q.8 LSTM networks are designed to overcome the limitations of standard RNNs, particularly the ____gradient problem. (CO-3)



Q.9 Which process converts a multi-dimensional array into a one-dimensional vector ? (CO-2)

Q.10 What function introduces non-linearity in neural networks ? (CO-1)

Q.11 Define image segmentation ? (CO-4)

Q.12 The sigmoid activation function is commonly used in CNNs (T/F) (CO-2)

## SECTION-C

**Note:** Short answer type questions. Attempt any eight questions out of ten questions. (8x4=32)

Q.13 Define vanishing gradient problem. Why is it significant in training deep neural networks ?(CO-3)

Q.14 What are the differences between max pooling and average pooling in CNNs? (CO-2)

Q.15 List common types of deep learning architectures and what are their primary uses ? (CO-1)

Q.16 What are the primary components of CNN architecture ? (CO-2)

Q.17 Explain the significance of deep learning in the context of big data ? (CO-1)

Q.18 How is deep learning used in Finance for fraud detection ? (CO-4)

Q.19 Why are LSTMs preferred over traditional RNNs for tasks involving long sequences? (CO-3)