VISHNU INSTITUTE OF TECHNOLOGY (AUTONOMOUS)

VISHNUPUR: BHIMAVARAM

Mid – I Examinations

Deep Learning

BRANCH : AI&DS, AIML

YEAR/SEM : III B. Tech. II Sem.

UNIT-I

1	Explain various paradigms of deep learning problems.	[CO1]	L1	[12M]
2	What is deep learning framework. Explain the Perspectives, and Issues in the deep learning framework.	[CO1]	L1	[12M]
3	Explain the concept of a Perceptron with a neat diagram.	[CO1]	L3	[12M]
4	What is Artificial Neural Network and its architecture?	[CO1]	L1	[12M]
5	Explain the structure of biological neuron in detail. What is the motivation for Neural network.	[CO1]	L1	[12M]
6	Discuss the XOR problem and suggest a solution using Neural Network.	[CO1]	L3	[12M]
7	Explain Multi-layer perceptron in detail	[CO1]	L2	[12M]
8	Summarize the mathematical model of neural unit	[CO1]	L1	[12M]
9	Explain the following non-linear functions by covering mathematical intuition, plots and derivates a. Sigmoid b. ReLU c. Tanh	[CO1]	L2	[12M]
10	Consider a unit with the following input vector, weight vector, and bias and compute the output by applying sigmoid, relu and tanh activation functions. a. w = [0.2,0.3,0.9] b. b = 0.5 c. x = [0.5,0.6,0.1]	[CO1]	L3	[12M]

UNIT-II

1	What is RMSprop, and how does it address some of the issues with traditional gradient descent?	[CO2]	L2	[12M]
2	How does early stopping prevent overfitting in deep neural networks?	[CO2]	L2	[12M]
3	Explain Gradient Descent. How does stochastic gradient descent differ from batch gradient descent?	[CO2]	L2	[12M]
4	What are the challenges associated with training deep neural networks compared to shallow networks?	[CO2]	L1	[12M]
5	Explain in detail about multilayer neural network	[CO2]	L1	[12M]
6	Illustrate the data augmentation technique in detail.	[CO2]	L2	[12M]
7	Explain the following loss functions a) Binary cross entropy loss b) Categorical cross entropy loss	[CO2] [CO2]	L3 L3	[6M] [6M]
8	Explain back propagation algorithm for neural networks.	[CO2]	L3	[12M]
9	How does dropout prevent overfitting, and what is its impact on training?	[CO2]	L1	[12M]
10	Explain in detail about the concept of gradient based learning.	[CO2]	L3	[12M]

UNIT-III

1	What is the role of a convolutional layer in a CNN, and how does it differ from fully connected layers in traditional neural networks?	[CO3]	L3	[6M]
2	How does the stride parameter affect the output size of the convolutional layer?	[CO3]	L1	[6M]
3	What is the purpose of the fully connected layers at the end of a CNN?	[CO3]	L1	[6M]
4	How can CNNs handle input images of different sizes without altering the network architecture?	[CO3]	L2	[6M]
5	Can you outline the typical architecture of a CNN and the sequence of its building blocks?	[CO3]	L2	[6M]
6	What is global average pooling, and how does it contribute to handling input size variations?	[CO3]	L1	[6M]
7	Describe the difference between max pooling and average pooling.	[CO3]	L2	[6M]
8	Why is padding used in convolutional layers, and what are its effects on the output size?	[CO3]	L2	[6M]
9	Can you explain the concept of filters or kernels in the context of the convolution operation?	[CO3]	L1	[6M]
10	What is the purpose of the convolution operation in a Convolutional Neural Network (CNN)?	[CO3]	L2	[6M]