Code: 20CS4701A

PVP-20

PRASAD V POTLURI SIDDHARTHA INSTITUTE OF TECHNOLOGY

(AUTONOMOUS)

IV B.Tech- I Semester- Regular Examinations- OCTOBER 2024

DEEP LEARNING

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

UNIT-I

1 A) Describe the concept of Deep Learning. Explain the Historical evolution and how it differs from Traditional Machine Learning Algorithms

Deep Learning	[2M]
History of DL	[2M]
Differences b/w ML and DL	[3M]

1 B) Compare and Contrast any three common Activation Functions

Write any 3 Activation Functions	[6M]
Comparison	[1M]

(OR)

2 A) Discuss the significance of Hyper Parameters in performance of the model training

Key Points used in Hyper Parameters	[3M]
Performance of the Model Training	[4M]

2 B) Explain at least 3 real world applications where deep learning has shown significant process.

Write any 3 Real World Applications.	[7M]

UNIT-II

3 A) Distinguish the key differences between a Variational Auto Encoder (VAE) and a Traditional Auto Encoder (TAE)? How does a VAE enable generating new data samples.

Differences between TAE and VAE	[4M]
How does a VAE enable generating new data samples.	[3M]

3 B) Demonstrate the fundamental idea behind Deep Belief Networks (DBNs)?

Deep Belief networks	[3M]
Architecture	[4M]

(OR)

4 A) Construct the architecture of Generative Adversarial Networks (GANs) with an example

Generative Adversarial Networks	[3M]
Architecture	[2M]
Example	[2M]

4 B) Describe the architecture and Training process of a Restricted Boltzmann Machine (RBM) and provide one example

Restricted Boltzmann Machine (RBM)	[2M]
Training Process	[3M]
Example	[2M]

UNIT-III

5 A) What are structured output in the context of CNNs and why are they important in tasks like image segmentation or object detection? Explain with an Example

Structured output in CNN	[4M]
Example	[3M]

5 B) Describe the concept of Random or unsupervised features in CNNs

List 3 Random or Unsupervised Features	[3M]
Concept	[4M]

(OR)

6 A) Explain Two efficient convolution algorithms used in CNNs.

List of Convolution Algorithms	[2M]
Explanation	[5M]

6 B) Compare and Contrast Max Pooling and Average Pooling, highlighting Strengths and Weaknesses.

Max Pooling and Average Pooling [5M]

Comparison [2M]

UNIT-IV

7 A) Construct the Architecture of an LSTM cell and how it retains and updates information over time

Architecture of LSTM [5M]

Weights Updation [2M]

7 B) What is the primary role of an Encoder-Decoder Architecture in Sequence- to – Sequence tasks? Discuss with an Example.

Encoder-Decoder Architecture [3M]

How Sequence- to – Sequence tasks used in Encoder and Decoder [4M]

(OR)

8 A) Explain the concept of Deep Recurrent Networks (DRN) and how it enables the modeling of complex sequential dependencies

Deep Recurrent Networks [3M]

Architecture [4M]

8 B) Illustrate the core idea behind Gated Recurrent Unit (GRU) and how they extend the capabilities of standard RNNs.

Gated Recurrent Networks [4M]

capabilities of standard RNNs [3M]

UNIT-V

9 A) Discuss the significance of Deep Learning in the field of Speech Recognition

Speech Recognition [4M]

Algorithm [3M]

9 B) Illustrate the application of Deep Learning in the healthcare domain with an Example

Any healthcare Domain with Algorithm [7M]

(OR)

10 A) Demonstrate the evolution of Deep Neural Networks in Computer Vision and their impact in image processing applications

Deep Neural Networks in Computer Vision [4M]

How it is used in Image Processing [3M]

10 B) Explain the impact of Deep Learning in improving Machine Translation, Sentiment Analysis

Machine Translation with Algorithm [3M]

Sentimental Analysis Explanation [4M]

***************THE END***************