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Reg. No: [ ][ ][ ][ ][ ][ ][ ][ ][ ][ ]

VELAGAPUDI RAMAKRISHNA

SIDDHARTHA ENGINEERING COLLEGE

(AUTONOMOUS)

IV/IV B.Tech. DEGREE EXAMINATION, DECEMBER, 2021

Seventh Semester

INFORMATION TECHNOLOGY

17IT4703A DEEP LEARNING

Time: 3 hours   *Max. Marks: 70*

Part-A is compulsory

Answer One Question from each Unit of Part - B

Answer to any single question or its part shall be written at one place only

PART-A

10 x 1 = 10M

1. a. Define machine learning.

    b. Write the functionality of a neuron.

    c. Differentiate training and testing a model.

    d. State stride and padding.

    e. List any two functionalities of functional max pooling.

    f. Write the use of denoising.

    g. Name any two applications of RNN.

    h. Name any two libraries that are used to implement deep learning models.

    i. State bidirectional RNN.

    j. Name a model that is used for dimensionality reduction.

PART-B

4 x 15 = 60M

UNIT-I

2. a. Describe the process of vectorizing an image for a machine learning algorithm. **8M**

   b. Explain the biological neuron structure with a neat diagram. **7M**

(or)

3. a. Discuss about linear neurons and their limitations. **6M**

   b. Differentiate sigmoid, Tanh and ReLU neurons with a suitable example. **9M**

UNIT-II

4. a. Demonstrate the process of Max pooling by taking 4 x 4 channel using 2 x 2 kernel and a stride of 2. **8M**

   b. Draw the architecture of VGGNet built for ImageNet. **7M**

(or)

5. a. Explain the representation of filters and feature maps as neurons in a convolutional layer. **7M**

   b. List the layers of CNN. Explain each with a neat diagram. **8M**

UNIT-III

6. a. Discuss dimensionality reduction using PCA to capture the most information. **8M**

   b. Explain the implementation of autoencoder using TensorFlow. **7M**

(or)

7. a. Write short notes on the following:
   i) Word2Vec framework.
   ii) Sparsity in Autoencoders. **8M**

   b. Illustrate the implementation of Skip-Gram architecture using TensorFlow. **7M**

UNIT-IV

8. a. Draw the computational graph for a recursive network. Explain. **8M**

   b. List the ways to make a recurrent neural network into deep. Explain with a suitable diagram. **7M**

(or)

9. a. Describe the approaches to handle long-term dependencies. **7M**

   b. Explain the long short-term memory model with a neat diagram. **8M**

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