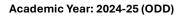


SRM Institute of Science and Technology

Data Science and Business Systems,

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Test: CLA-T1 Date: 27-08-2024

Course Code & Title: 18CSE484T - Convolutional Neural Network Duration: 1 hour

Year & Sem: IV Year / VII Sem Max. Marks: 25

Part A $(5 \times 1 = 5)$

1. What is the primary function of a Convolutional Neural Network (CNN)?

- A. Classifying text data
- B. Processing sequential data
- C. Recognizing patterns in image data
- D. Predicting numerical values

2. Which layer in a CNN is responsible for extracting features from an image?

- A. Fully connected layer
- B. Convolutional layer
- C. Pooling layer
- D. Activation layer

3. What is the purpose of a pooling layer in a CNN?

- A. Increasing the dimensionality of feature maps
- B. Reducing the dimensionality of feature maps
- C. Adding non-linearity to the network
- D. Normalizing the input data

4. Which activation function is commonly used in CNNs?

- A. Sigmoid
- B. ReLU
- C. Softmax
- D. Tanh

5. What is the role of a fully connected layer in a CNN?

- A. Extracting local features
- B. Reducing dimensionality
- C. Combining features and making predictions
- D. Introducing non-linearity

Part B $(3 \times 2 = 6)$

- 6. What is the role of convolution in a CNN?
- 7. Explain the concept of feature extraction using convolution filters.
- 8. A 4x4 image is given with a 3x3 filter. What padding is required to maintain the original image size?

Part C $(2 \times 7 = 14)$

9. A CNN consists of the following layers:

Input: 64,64

Conv layer: 32 filters, kernel size 3x3, stride 1, padding 'same', input channels 3.

Max pooling: 2x2.

Conv layer: 64 filters, kernel size 3x3, stride 1, padding 'same'.

Fully connected layer: 1024 neurons.

Output layer: 10 neurons.

Calculate the total number of parameters in the network.

10. Explain the basic structure of a CNN, including its core components.