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**PRESIDENCY UNIVERSITY
BENGALURU**

SCHOOL OF ENGINEERING

MAKE UP EXAMINATION – JAN 2023

Course Code: CSE235

Course Name: Introduction to Deep Learning

Program & Sem: B. Tech

Date: 23/01/2023

Time: 1.00PM – 4.00PM

Max Marks: 100

Weightage: 50%

Instructions:

(i) Read the all questions carefully and answer accordingly.

Part A [Memory Recall Questions]

Answer all the Questions. Each question carries 5 marks. (4Qx 5M= 20M)

- 1 Explain the differences between machine learning and deep learning. (C.O.No.2) [Knowledge]
- 2 Explain types of RNN with examples. (C.O.No.2) [Knowledge]
- 3 Explain any 3 activation functions. (C.O.No.3) [Knowledge]
- 4 Mention the properties of Autoencoders. (C.O.No.3) [Knowledge]

Part B [Thought Provoking Questions]

Answer all the Questions. Each question carries 10 marks. (5Qx10M=50M)

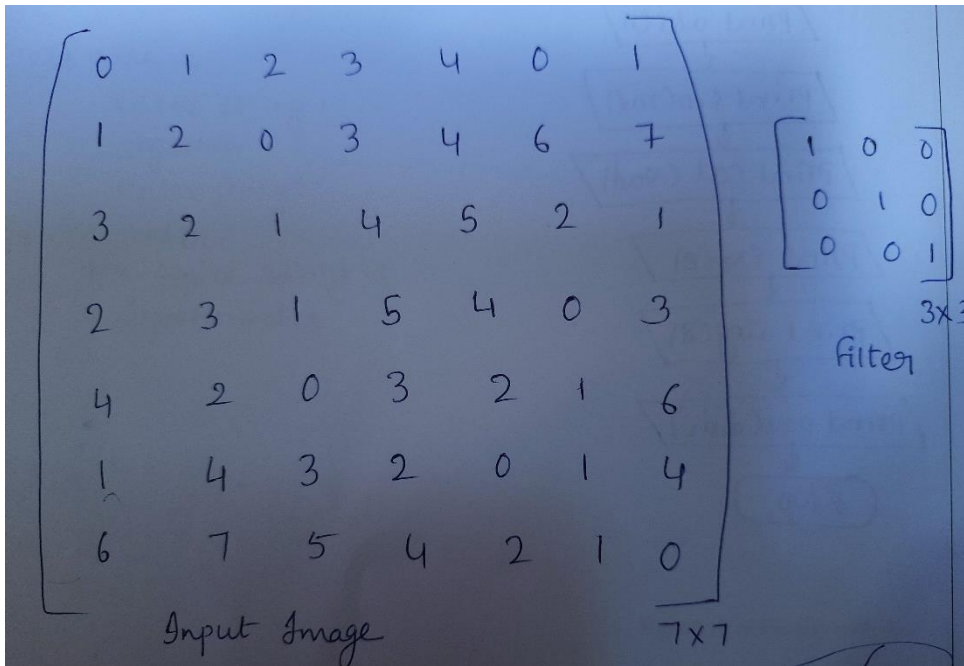
5. Explain the hyperparameters of deep neural network. (C.O.No.1) [Comprehension]
6. Discuss the architecture of the CNN a supervised deep learning model which is best suited for image classification. (C.O.No.2) [Comprehension]
7. Explain the Loss functions of Neural network. (C.O.No.1) [Comprehension]
8. Explain LSTM with its architecture. (C.O.No.3) [Comprehension]
9. Discuss any two optimization techniques in detail. (C.O.No.1) [Comprehension]

Part C [Problem Solving Questions]

Answer all the Questions. Each question carries 15 marks.

(2Qx15M=30M)

Q.NO. 10. Apply the filter on the given input image and perform convolution operation with stride 2. Show the resulting feature matrix. Also, demonstrate result after applying Relu activation function. Then apply average pooling of window size 2X2 with stride 1 and show the final result after flattening. [15m] (C.O.No.2) [Application]



Q.NO. 11. Consider a Neural Network with 2 input Units. 1 neuron in the hidden layer and 1 neuron in output unit. Assume weights between Input-Hidden are [1 1.5] and between Hidden - Output is [2] Consider Bias $b=1$ and ReLU activation function for both hidden and output layer. For Input $X = [2 \ 4]$ the actual output is=32. Draw the network diagram. Calculate the predicted output and find the error. To minimize the error, update the weights using back propagation

[15m] (C.O.No.1) [Application]