Total No. of Questions:[06]

Total No. of Printed Pages:[02]

PRN. No.	

PAPER CODE	U482-231B (ESE)

MAY 2022 - ENDSEM EXAM

FINAL YEAR B. TECH. (COMPUTER ENGINEERING)

(SEMESTER - II)

COURSE NAME: PROFESSIONAL ELECTIVE-IV

[ADVANCED MACHINE LEARNING]

COURSE CODE: CSUA40181B

(PATTERN 2018)

Time: [1 Hr]

[Max. Marks: 30]

Instructions to candidates:

1) **Answer Q.1 OR Q.2, Q.3 OR Q.4, Q.5 OR Q.6.**
2) **Figures to the right indicate full marks.**
3) **Use of scientific calculator is allowed.**
4) **Use suitable data wherever required.**

Q.1 a) After training a neural network, you observe a large gap between training accuracy (100%) and the test accuracy (42%). Choose method to reduce this gap. [4]

b) Justify the need of Gradient Descent in neural network with detailed explanation of its working. [6]

OR

Q.2 a) "Mini batch gradient descent is faster than gradient descent." Justify the statement. [4]

b) When should one use L1, L2 regularization instead of dropout layer, given that both serve same purpose of reducing over-fitting? Justify your answer. [6]

Q.3 a) Explain following terms
i)Deep Dream
ii) Deep Art [4]

b) Compare various architectures of CNN. [6]

OR

Q.4 a) "Convolutional Neural Network (CNN) work better with image data." Give justification. [4]

b) Given a Convolutional Neural Network having three different convolutional layers in its architecture as – [6]
in Layer 1 - 10 filters of 3X3, stride 1 and no padding,
in layer 2 -20 filters of 5 X 5 with stride 2 and no padding,
in layer 3- 40 filters of 5 X 5 with stride 2 and no padding,
If 39 X 39 3-D image pass as input to this network, then estimate the dimension of the vector after passing through a fully connected layer in the architecture.

Q.5 a) Distinguish BPTT and truncated BPTT. [4]

b) "RNNs work better with text data". Give justification. [6]

OR

Q.6 a) Compare GRU and LSTM architectures. [4]

b) Which of the following activation functions can lead to vanishing gradients? [6]
i) ReLU
ii) Tanh
iii) Leaky ReLU
Justify your answer with explanation of its working