G.R. No.	

DECEMBER 2021 - ENDSEM EXAM
FINAL YEAR B. TECH. (COMPUTER ENGINEERING)
(SEMESTER - I)
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) Distinguish following methods of the Gradient descent

      i.   Batch GD
      ii. Minibatch GD and
      iii. Stochastic GD
                                         [4]

   b) Explain dropout method of regularization.   [6]

OR

Q.2 a) "The model with low bias and variance is the balanced model", justify the statement.   [4]

   b) Compare techniques of regularization.   [6]

Q.3 a) Justify need of RELU activation function in CNN.   [4]

   b) Draw and elaborate architecture of CNN.   [6]

OR

Q.4 a) Justify need of flattening layer in CNN architecture.   [4]

   b) Given a Convolutional Neural Network having three different convolutional layers in its architecture as –
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. [6]

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

b) Suppose we want to predict which character would be the $n+1^{th}$ character in the sequence. For example, our input is "Educatio" (which is 8 character word) and we have to predict what would be the 9th character. Select the best suitable neural network for such problem and elaborate network in detail. [6]

OR

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

b) Explain components of LSTM. [6]