COURSE CODE (CREDITS): 19B1WCI738 (3)　　　　　MAX. MARKS: 15

COURSE NAME: INTRODUCTION TO DEEP LEARNING

COURSE INSTRUCTORS: Dr. Jagpreet Sidhu　　　　　MAX. TIME: 1 Hour

Note: All questions are compulsory. Marks are indicated against each question in square brackets.

Q. No. 1	(a) Does deep learning have *Bias and Variance Trade-off*? Justify your answer with suitable example. (b) Discuss distribution of *Training/Development/Testing* dataset in deep learning?	[2+1 Marks] [CO-2]
Q. No. 2	Gradient descent is used to train the parameters w and b for logistic regression neural network. Explain how Gradient descent works with respect to logistic regression neural network cost function $J(w, b)$.	[3 Marks] [CO-1]
Q. No. 3	When you build a neural network, you need to make a choice of choosing activation function at each layer of neural network. Explain why activation functions are important and list any three activation functions which you prefer to choose in your designed neural network.	[3 Marks] [CO-1]
Q. No. 4	There is a feed forward multi-layer neural network which has 2 hidden layers with 3 neurons each. There are 4 inputs and one output of this neural network. Determine the Size of matrix at each layer?	[2 Marks] [CO-2]
Q. No. 5	(a) How regularization removes the overfitting problem in deep neural network? (b) Discuss Dropout Regularization for deep neural network taking an example neural network.	[2+2 Marks] [CO-3]