

(3 Hours)

Total Marks: 80

N.B. : 1) Question No.1 is **compulsory**.2) Attempt any **THREE** from the remaining questions.

3) Figures to the right indicate full marks.

- Q.1** Write a short note on any **Four** **20**
- A** McCulloch-Pits Neuron **5**
- B** Dataset Augmentation **5**
- C** Recursive Neural Networks. **5**
- D** Long Short-Term Memory (LSTM) network. **5**
- E** The relation between ML and DL. **5**
- Q.2** **A** Describe Ensemble Learning methods for Deep Neural Networks. **10**
- B** Explain any one Regularization Technique in detail. **10**
- Q.3** **A** Explain Multi-Layered Perceptron (MLP) with a neat diagram **10**
- B** Briefly explain any two benefits of using CNNs over traditional fully connected Feed-Forward NNs for learning visual tasks. **10**
- Q.4** **A** Explain Multi-task Learning and describe some of its applications. **10**
- B** Explain the Gradient-Descent based Back-Propagation Learning algorithm. **10**
- Q.5** **A** Explain the encoder-decoder RNN architecture for machine translation. **10**
- B** Explain the basic algorithms for and challenges in neural network optimization. **10**
- Q.6** **A** Briefly explain the concepts of overfitting and inductive bias. **10**
- B** Explain the architecture of a Convolutional Neural Network with a neat diagram. **10**
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