

NATIONAL INSTITUTE OF TECHNOLOGY, TIRUCHIRAPPALLI – 620015
DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

B.Tech – Compensation Exam
CSPE72 - DEEP LEARNING TECHNIQUES

Date: 28.10.2025

Time: 10.00 am to 11.00 am

Max.Marks: 20

Answer all questions

1. Explain the role of regularization techniques such as L1 and L2 in neural network (2) training. How do they help prevent overfitting?
2. Prove that a single-layer perceptron can learn the AND and OR logic functions, (3) but the XOR function cannot be learned.
3. Describe the concept of batch normalization and explain how it improves the (2) training of deep neural networks.
4. Compare and contrast early stopping with dropout as regularization strategies in (3) neural network training.
5. What happens if the stride of the convolutional layer increases? What can be the (2) maximum stride?
6. Explain Generative Adversarial Networks using a suitable diagram (4)
7. What is transfer learning, and how is it applied in the context of image (4) classification? Provide an example using pre-trained networks.

***** END *****