



QP CODE: 25047546

Reg No :

Name :

M.Sc DEGREE (CSS) EXAMINATION, NOVEMBER 2025

Third Semester

M.Sc APPLIED ELECTRONICS

Core Course - EL020302 - ARTIFICIAL NEURAL NETWORKS AND DEEP LEARNING

2019 ADMISSION ONWARDS

0C2705C8

Time: 3 Hours

Weightage: 30

Part A (Short Answer Questions)

*Answer any **eight** questions.*

*Weight **1** each.*

1. What is meant by Epoch in learning process?
2. What are the features of deep neural networks?
3. What are the two assumptions needed to make cost function C in order that back propagation can be applied?
4. Explain Hadamard product.
5. Explain cross entropy cost function
6. What is over fitting problem?
7. Define softmax function.
8. Compare the universality with one input and many inputs.
9. Explain why vanishing gradient is significant when sigmoid neuron is used.
10. Explain the concept of shared weights in convolutional network.

(8×1=8 weightage)

Part B (Short Essay/Problems)

*Answer any **six** questions.*

*Weight **2** each.*

11. Give the mathematical representation of Rosenblatt's perceptron neuron model.
12. Discuss briefly McCulloch Pitt's artificial neuron model. Give its limitations.





13. Differentiate between feed forward networks and recurrent neural networks.
14. Explain overfitting problem and how it is handled by L2 regularisation method.
15. Compare L1 and L2 regularisation.
16. Explain the concept of Universality with one input and one output.
17. The neurons in the earlier layers learn much more slowly than neurons in later layers. Explain
18. Explain the concept of in Shared weights and biases in Convolutional neural networks.

(6×2=12 weightage)

Part C (Essay Type Questions)

*Answer any **two** questions.*

*Weight **5** each.*

19. Explain back propagation algorithm. Explain the four fundamental equations behind backpropagation.
20. Explain any two techniques which can be used to improve the efficiency of learning process in neural networks.
21. Explain the concept of deep learning. How unstable gradients affect its efficiency?
22. Explain the three basic ideas used in convolutional neural networks .

(2×5=10 weightage)

