

QP CODE: 25047510



Reg No :

Name :

M.Sc DEGREE (CSS) EXAMINATION, NOVEMBER 2025

Third Semester

M Sc ELECTRONICS

ELECTIVE - EL800301 - ARTIFICIAL NEURAL NETWORKS AND DEEP LEARNING

2019 ADMISSION ONWARDS

85221E50

Time: 3 Hours

Weightage: 30

Part A (Short Answer Questions)

*Answer any **eight** questions.*

*Weight **1** each.*

1. Define weight.
2. Explain the features of multilayer perceptrons (MLP).
3. Explain the importance of epoch in the learning process.
4. Explain Hadamard product with the help of an example.
5. Why learning process is slow when quadratic function is used as the cost function.
6. How the cross entropy cost function reduces slowdown process in neural network?
7. Explain how hyper parameters are selected in a neural network.
8. Compare the universality with one input and many inputs.
9. Explain how neural networks are affected by unstable gradients.
10. Explain the idea of local receptive field in convolutional network.

(8×1=8 weightage)

Part B (Short Essay/Problems)

*Answer any **six** questions.*

*Weight **2** each.*

11. Explain the importance of gradient descent algorithm in minimizing the cost function.
12. Explain a fast matrix-based approach to compute the output from a neural network.
13. What is the significance of back propagation in gradient descent algorithm?
14. How the classification of digits is done using cross entropy.
15. Define softmax function? Explain how it is used to reduce slow down problem in learning process.





16. Explain the concept of Universality with one input and one output.
17. Explain the vanishing and exploding gradient problem in ANN.
18. Why the gradient in deep neural networks is unstable, tending to either explode or vanish in earlier layers?
(6×2=12 weightage)

Part C (Essay Type Questions)

*Answer any **two** questions.*

Weight 5 each.

19. Graphically, sketch the different activation functions used in NN.
20. Explain the concept of regularisation .Differentiate between L1 regularisation and L2 regularisation methods
21. Explain the concept of deep learning.How unstable gradients affect its efficiency?
22. Compare the working of feed forward network with Convolutional neural network.

(2×5=10 weightage)

