K24P 3653

Reg. No. : .....

Name : .....

IV Semester M.Sc. Degree (CBSS – Regular) Examination, April 2024
(2022 Admission)
STATISTICS WITH DATA ANALYTICS
Open Elective Course
MST4OE01 : Neural Networks and Deep Learning

Time : 3 Hours Max. Marks : 80

PART – A

Answer **all** questions. **Each** question carries 2 marks.

1. Compare between biological neuron and artificial neuron.
2. State any two limitations of ANN.
3. Describe how learning vector quantization works.
4. Discuss the role of momentum factor in ANN.
5. What are the components of convolution neural networks ?
6. What is meant by local response normalization ?
7. Discuss any two applications of finite difference method.
8. Explain Markov decision process. **(8×2=16)**

PART – B

Answer **any four** questions. **Each** question carries **4** marks.

9. Elucidate any four terminologies of ANN.
10. Discuss the comparison of adaptive linear neuron and multiple adaptive neuron.
11. Describe any two components of CNN.

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12. State the maxnet algorithm and activation function. Explain how to develop the final winning of neuron with an example.

13. Discuss briefly how rectified linear units capture interactions and non-linearities ?

14. Discuss the major elements comprised in reinforcement learning approach. **(4×4=16)**

PART – C

Answer **any four** questions. **Each** question carries **12** marks.

15. i) What is meant by back propagation network ?
    ii) Describe the advantages of using back propagation network.

16. What is meant by self-organizing networks ? Discuss the following :
    i) Fixed weight competitive net
    ii) Learning vector quantization
    iii) Humming networks

17. Discuss the following :
    i) Padding and stride
    ii) Exponential linear unit
    iii) Fully connected layers

18. Discuss likelihood ratio method and Monte Carlo tree search methods with suitable examples in ANN.

19. i) Discuss Bellman's equation with applications.
    ii) Explain Straw-Man algorithm.

20. Discuss the following :
    i) Basic models of ANN.
    ii) Learning methods and activation function.
    iii) Training and testing of data. **(4×12=48)**