

Total No. of Questions : 8]

SEAT No. :

PD4262

[Total No. of Pages : 2

[6403]-58

T.E. (Artificial Intelligence and Data Science)

ARTIFICIAL NEURAL NETWORK

(2019 Pattern) (Semester - VI) (317531)

Time : 2½ Hours]

[Max. Marks : 70

Instructions to the candidates:

- 1) Answer Q.1 or Q.2, Q.3 or Q.4, Q.5 or Q. 6, Q.7 or Q.8.
- 2) Neat diagrams must be drawn wherever necessary.
- 3) Figures to the right indicate full marks.
- 4) Assume Suitable data if necessary.

**Q1)** a) Explain the Boltzmann machine and Boltzmann learning law. What are the limitations of the Boltzmann learning? [9]

b) Explain the concept of associative learning and associative memory in artificial neural networks. How is it related to pattern recognition? [8]

OR

**Q2)** a) Write a short note on : [9]

- i) Pattern Classification
- ii) Pattern mapping Task

b) What is simulated Annealing? Write and explain Simulated Annealing Algorithm. [8]

**Q3)** a) Enlist and explain components of Competitive learning Network. [9]

b) Describe the architecture of a Self-Organizing Map (SOM). Discuss the Competition, Cooperation, and synaptic adaptation process. [9]

OR

**Q4)** a) What is Vector Quantization. Explain linear vector quantization training algorithm. [9]

b) State and explain Properties of feature map in detail. Enlist Applications SOM. [9]

P.T.O.

- Q5)** a) Draw and explain the architectures of Convolutional Neural Network. [9]  
b) Write a short note on following CNN Model: [9]  
i) LeNet-5  
ii) AlexNet

OR

- Q6)** a) Explain the concept of Bias and Variance. Discuss the different combination of Bias and Variance. [9]  
b) Explain any four Deep Learning Framework in detail. [9]

- Q7)** a) Explain the architecture of NET talk model. Discuss the application of to convert English text to speech. [9]  
b) Discuss the application of ANN in pattern classification and recognition of Olympic game symbols. [8]

OR

- Q8)** a) Describe the Neocognitron model and its significance in the recognition of handwritten characters. [9]  
b) Explain texture classification and segmentation in ANN. [8]

