

Total No. of Questions : 8]

SEAT No. :

PB3799

[6262]-58

[Total No. of Pages : 2

T.E. (Artificial Intelligence and Data Science)

ARTIFICIAL NEURAL NETWORK

(2019 Pattern) (Semester- II) (317531)

Time : 2½ Hours]

[Max. Marks : 70

Instructions to the candidates:

- 1) *Solve questions 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) How does Hopfield network work and state its limitations. [6]

b) Exemplify simulated annealing with its advantages and disadvantages. [6]

c) Define:

- i) Pattern association
- ii) Pattern classification
- iii) Pattern mapping tasks

OR

Q2) a) Explain in detail stochastic gradient approach. [6]

b) State basic functional units of ANN for pattern recognition tasks. [6]

c) What is catastrophic forgetting in neural network? [6]

Q3) a) Why Kohonens network are called self organizing maps? [6]

b) What is Adaptive Resonance Theory and its applications? [6]

c) Define following:

- i) Learning vector quantization
- ii) Adaptive pattern classification

OR

P.T.O.

- Q4)** a) How to recognize character using ART network? [6]
b) What is competitive learning in neural network and its limitations? [6]
c) Explain SOM architecture and its uses. [6]

- Q5)** a) Why do we prefer Convolution Neural Networks(CNN) Over Artificial Neural Networks(ANN) for image data as input? [6]
b) Write short note on:
i) AlexNET
ii) VGG-16
iii) Residual networks
c) Explain the role of the flattening layer in CNN. [5]

OR

- Q6)** a) What exactly is a CNN and how does it work? [6]
b) Define bias and variance. What is bias-variance trade-off? [6]
c) What do we use a pooling layer in a CNN? [5]

- Q7)** a) Explain automatic language translation with its three basic rules. [6]
b) Exemplify recognition of Olympic Games symbols. [6]
c) What is NET talk? [5]

OR

- Q8)** a) Exemplify pattern classification? [6]
b) Write a short note on:
i) Texture classification
ii) Texture segmentation
c) Illustrate about Neocognitron? [5]

