SEAT No. :

PB3799

[6262]-58

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 Hopefield network work and state its limitations. **[6]**

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

c) Define: **[6]**

   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: **[6]**

   i) Learning vector quantization

   ii) Adaptive pattern classification

OR

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: **[6]**

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: **[6]**

i) Texture classification

ii) Texture segmentation

c) Illustrate about Neocognitron? **[5]**

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