Printed Pages:2 **Sub Code: KCA-042**

Paper Id: 236597 **Roll No.** | | | | | | | | | | |

MCA

(SEM IV) THEORY EXAMINATION 2022-23

NEURAL NETWORK

Time: 3 Hours ***Total Marks: 100***

Note: Attempt all Sections. If require any missing data; then choose suitably.

SECTION A

1. Attempt *all* questions in brief. 2 x 10 = 20

(a) Define Neuromorphic Computing.
(b) What are the features of neural networks?
(c) State the Hebbian learning law.
(d) What are learning laws in neural networks?
(e) List any two applications of Back Propagation network.
(f) List the merits of Boltzmann's Machine.
(g) Define Self-Organization?
(h) What is recurrent neural network?
(i) Write down the application of Soft computing.
(j) What you mean by Hard and Soft computing?

SECTION B

2. Attempt any *three* of the following: 10 x 3 = 30

(a) Exemplify the significance of sigmoid function.
(b) Explain any three activation functions which are used in single and multilayer networks to calculate the output.
(c) Discuss the performance of back propagation learning. What are the limitations of back propagation learning? Explain in detail.
(d) Explain the SOM algorithm.
(e) What do you mean by Complex valued NN? Discuss.

SECTION C

3. Attempt any *one* part of the following: 10 x 1 = 10

(a) What is learning in ANN? List the important learning strategies in ANN
(b) Discuss the structure and function of a biological neuron.

4. Attempt any *one* part of the following: 10 x 1 = 10

(a) What is linearly separable problem? Distinguish between linearly separable problem and nonlinearly separable problem.
(b) Explain Least mean Square algorithm.

5. Attempt any *one* part of the following: 10 x 1 = 10

(a) Distinguish between Radian Basis Function Neural Network and Multi-layer Perceptron Feed-Forward Neural Network
(b) What do you mean by Back propagation network? How Error is back propagated in a BPN? Discuss.

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6. Attempt any *one* part of the following: 10 x 1 = 10

(a) Explain the Kohonenself-organizing map with diagram. Also discuss the merits and demerits of Kohonenself-organizing feature maps.

(b) What is Component analysis? Explain the Independent component analysis.

7. Attempt any *one* part of the following: 10 x 1 = 10

(a) What is hybrid soft computing? Explain any hybrid soft computing technologies.

(b) Describe the Fuzzy set. Explain the role of fuzzy set in soft computing.

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