AR 19   Reg. No

GIET UNIVERSITY, GUNUPUR – 765022
B. Tech (SeventhSemester – Regular) Examinations, November – 2022
BPECS7012 / BPECT7012 – Artificial Neural Network
(CSE & CST)

Time: 3 hrs   Maximum: 70 Marks

Answer ALL Questions
The figures in the right hand margin indicate marks.
PART – A: (Multiple Choice Questions)   **(1 x 10 =10 Marks)**

		[CO#]	[PO#]
Q.1. Answer **ALL** questions			
a. Which is the characteristics of Hard computing technique		CO-1	PO-2

    (i) Imprecise   (ii) Uncertainty

    (iii) Approximation   (iv) Unambiguous

b. Which is not a non-linear activation function   CO-1   PO-1

    (i) Sigmoidal function   (ii) Binary step function

    (iii) Tangent hyperbolic function   (iv) Gausian function

c. Which part of biological cell is used to receive input signals   CO-1   PO-2

    (i) Synapse   (ii) Axon

    (iii) Dendrite   (iv) Soma

d. Non-linear separable means   CO-2   PO-1

    (i) only two solutions   (ii) Can be separated by a straight line

    (iii) Only grouping done by non-linear curve   (iv) None of the above

e. Supervised learning is used to solve   CO-2   PO-2

    (i) Classification problem   (ii) Clustering problem

    (iii) Toy problem   (iv) Regression problem

f. Which training rule is used by BPN   CO-2   PO-3

    (i) Hebb's rule   (ii) Perceptron learning

    (iii) Competitive learning   (iv) Delta rule

g. Which is the characteristics of RBF   CO-3   PO-3

    (i) Increase the lower dimension of input feature to higher dimension   (ii) Increase the higher dimension of input feature to lower dimension

    (iii) Keeps same dimension   (iv) None of the above

h. RBF is a   CO-3   PO-2

    (i) Supervised learning   (ii) Unsupervised learning

    (iii) Reinforcement learning   (iv) Semi-supervised learning

i. Vigillance parameter is   CO-4   PO-2

    (i) Parameter assigned for winner neuron   (ii) Bias value

    (iii) learning rate   (iv) None of the above

j. Which is a Recurrent neural network   CO-4   PO-1

    (i) BPN   (ii) Jordan neural network

    (iii) KSOM   (iv) ART-1

PART – B: (Short Answer Questions)   **(2 x 10=20 Marks)**

Q.2. Answer *ALL* questions   [CO#]   [PO#]

a. Write the difference between Hard computing and Soft computing   CO-1   PO-2

b. Find out net input of a artificial neural network having three inputs 0.4, 0.6, 0.8 and   CO-1   PO-3
    three weight values 0, -1, 1.

c. What is activation function in Neural network?   CO-2   PO-2

d. Write any two applications of unsupervised neural network   CO-2   PO-3

e. Compute Δw by Perceptron learning rule if α = 0.4, target is 0.90 and actual output is   CO-3   PO-2
    0.85 .

f. Draw a 3-2 single layer neural network.   CO-3   PO-1

g. What is Sigmoidal activation used in neural network   CO-3   PO-2

h. What is the difference between ART-1 and ART-2 ?   CO-4   PO-4

i. Draw Jordan neural network.   CO-4   PO-1

j. What is mean square error in neural network?   CO-4   PO-2

PART – C: (Long Answer Questions)   **(10 x 4=40 Marks)**

Answer *ALL* questions   Marks   [CO#]   [PO#]

3. a. Compare ANN with BNN   5   CO-1   PO-2

   b. Draw a biological neuron and explain it.   5   CO-1   PO-1

(OR)

   c. Draw and explain feed forward neural network.   5   CO-1   PO-1

   d. Implement AND function by using Mc-Culloch Pitt model.   5   CO-1   PO-2

4. a. How is MADLINE neural network used for problem solving?   7   CO-2   PO-3

   b. Compare ADALINE with MADLINE   5   CO-2   PO-3

(OR)

   c. Explain Back Propagation Neural network   10   CO-2   PO-2

5. a. Discuss different Machine learning methods.   7   CO-2   PO-2

   b. Write different Radial Basis Functions.   3   CO-3   PO-1

(OR)

   c. What are the demerits of perceptron ? how is it overcome in RBF neural   10   CO-3   PO-1
       network ?

6. a. Construct an ART-1 network for clustering three input vectors with low   10   CO-2   PO-2
       VP = 0.4 into three clusters. The three input vectors are [0 0 0 1], [0 1 0 1] and
       [1 0 0 0].

(OR)

   c. Write short notes on: Hebb's learning rule   5   CO-4   PO-1

   d. Nonlinear Activation function   5   CO-4   PO-2

--- End of Paper ---