G.R. No.		PAPER CODE	U321—225D(ESE)

May 2022 (ENDSEM) EXAM
T.Y. B. TECH. (SEMESTER – II- ALL BRANCHES)
COURSE NAME: Artificial Neural Network in Engineering
COURSE CODE: IOEUA32185D
(PATTERN 2018)

Time: [1Hr]   [Max. Marks: 30]

(*) Instructions to candidates:
1) **Figures to the right indicate full marks.**
2) **Use of scientific calculator is allowed**
3) **Use suitable data where ever required**

Q.1 a) Explain overfitting of an ANN in brief with respect to its cause and effect?   [4]
         How to avoid overfitting?

     b) Discuss the statistical parameters for model evaluation   [6]

                              OR

     b) For a feed forward back propagation neural network how to fix number of   [6]
        input neurons, output neurons and hidden neurons? Discuss the data
        preprocessing

Q2   a) Discuss working of self-organized feature maps   [4]

     b) Differentiate between Radial basis function neural networks and feed
        forward back propagation neural networks

                              OR   [6]

     b) Differentiate between generalized regression neural networks and feed
        forward back propagation neural networks

                                                                                         [6]

Q.3 a) Discuss application of FFBP neural network for any practical problem with   [4]
        respect to type of ANN, variables used, architecture, training algorithm,
        transfer functions.

     b) The resisting force F on a supersonic plane during its flight can be   [6]
        considered to be dependent on the length L, velocity V of the plane, density
        ρ, viscosity μ and bulk modulus of elasticity of the air. Design a neural
        network using the above parameters and give following details

1. Input and output variable(s)
  2. Architecture with figure
  3. Size of weight and bias matrix
  4. Activation functions, performance function

OR

b) The power developed by a water turbine (P) depends upon the rotational speed N, operating head (H), gravitational acceleration (g), diameter (D) and breadth (B) of the runner, density (ρ) and viscosity (μ) of water. **[6]** Design a neural network using the above parameters and give following details

  1. Input and output variable(s)
  2. Architecture with figure
  3. Size of weight and bias matrix
  4. Activation functions, performance function