SCOA Assignment - 02

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Q1) Explain neuro fuzzy hybrid, neuro genetic hybrid & fuzzy genetic hybrid system.

→ a) Neuro-fuzzy hybrid system :-

A system that determines its parameters by processing data samples with the help of a learning algorithm takes from neural network theory. A hybrid intelligent system that integrates ANN & fuzzy logic useful in performing mapping with some degree of impression easy to conceptulize & user friendly way to design non-linear controllers large amount of academic research is also available

b) Neuro-genetic (Hybrid) -

Genetic algorithm are used to encode the parameters of neural networks on a large string of properties of a network i.e chromosomes is generated GA-NN are capable of Locating the neighbours hood of the optimal solution quicker generates better population from good parents used in face-recognition animal Cannols, etc.

c) Fuzzy genetic Hybrid System :-

We use genetic algorithms to develop the best optimized set of rules to be used for fuzzy inference system. Regular use of is in fuzzy classification system

In this system, an object is classified on the basis of the linguistic values of the object attributes are challenging task is to find out appropriate set of fuzzy rules

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Q2) Define Bias & Threshold

→ i) Bias :-

When calculating the out put of a value, the inputs are multivalued by weights & a bias value is added to the result. The bias allows the activation function to be shifted to left or right, to better fit the data. Bias only influence the output values. It doesn't interact with the actual input data

Threshold :-

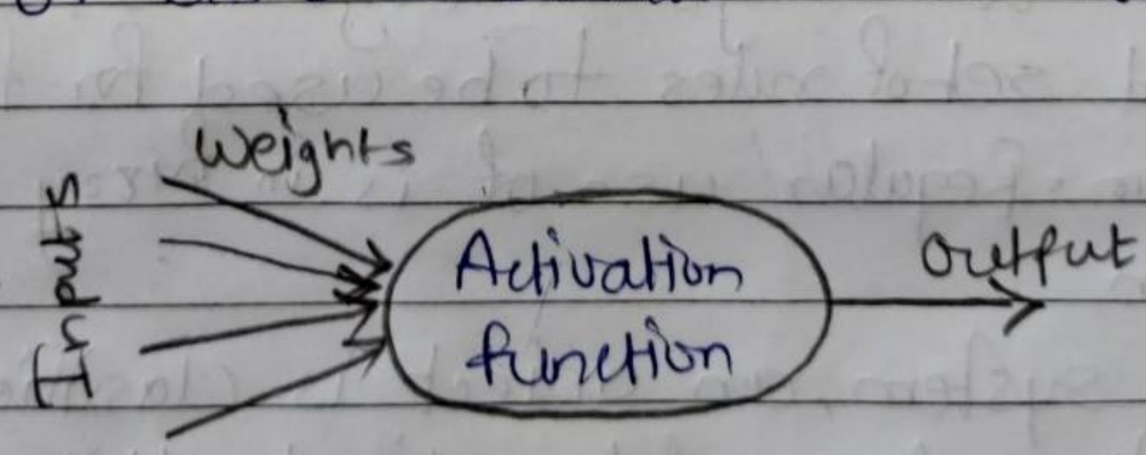
It is a peak value on a break through point after which certain specific actions are performed by the modules

Q3] Write short Note on important terminology on ANN's.

→ Elements of Artificial Neural Networks (ANN) :-

i) processing elements
ii) Topology
iii) Learning Algorithm.

i) Processing elements :- ANN consists of basis processing units or elements similar to that of neurons of a brain



In general, a processing unit made of up summing unit followed by an output unit. The function is to take n input values, wt. each input value &

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the weighted sum of of these values

ii) Topology :- Any ANN will become useful only when all the processing elements are organised in an appropriate manner so that they can accomplished the task of pattern recognition. The organization or arrangement of the processing elements, their interconnection, inputs & outputs is simply known as Topology. Some commonly used topologies ANN are Instar, outstar Autoassociative Memory, etc.

iii) Learning algorithms :- The operations any neural network is governed by neural dynamics consting of both activation state dynamics & synaptic weight dynamics. Learning algorithms or Laws are implementation of synaptic dynamics & are described in terms of first derivative of the weights. These learning can be supervised, unsupervised or a hybrid both. some of commonly known learning algorithms are Hebb's Law, Instar learning algorithm outstar learning law, etc