SCOA A5

Name : Abhishek mankuskar
class : BE comp-2
PRN : F17112015

Q.1) Explain Neuro fuzzy hybrid neuro genetic hybrid & Fuzzy genetic hybrid system ?

Ans. i) Neuro Fuzzy hybrid System :-
· Neuro fuzzy System is based on Fuzzy System which is trained on the basis of working of neural network theory
· The learning process operates only on the local information and causes only local changes in the underlying Fuzzy System.

2) Neuro Genetic Hybrid Systems :
· A Neurogenetic hybrid system is a system that combines Neural Network, which are capable to learn various tasks from examples classify objects & establish relation between them and Genetic algorithm, which serves important Search and opetimization techniques
· These algorithms can also be used for topology Selection & training network.

3) Fuzzy Genetic Hybrid System :
· A Fuzzy Genetic Hybrid systems is developed to use Fuzzy logic based techniques for improving & modeling genetic algorithms & vice-versa.

Q.2)
Ans

Define Bias and Threshold.

1) Bias :- • Bias has an impact in calculating net input
• Bias is included by adding x_0 to the input vector
• The net output is calculated by.

$$y_{inj} = \sum_{i=0}^{n} x_i w_{ij}$$

$$= h_j + \sum_{i=0}^{n} x_i w_{ij}$$

• The bias is of 2 types.
Positive bias - Increases the net impact
Negative bias - Decreases the net input

2) Threshold :-
• It is a set value based upon which the final output is calculated
• Calculated net input & threshold is compared to get the network output
• The activation function & threshold is define day

$$F(net) = \begin{cases} 1 & \text{if } net \geq \theta \\ -1 & \text{if } net < \theta \end{cases}$$

Where θ is the fixed threshold value

Q.3)
Ans:

Write Short note on important terminology of ANN's

1) Neurons :
ANN's are composed of artificial neurons which are conceptually derived from biological neurons.
• Each artificial neuron has inputs and produce a single output which can be sent to multiple other neurons

- The inputs can be the feature values of a sample of external data, such as images & documents, or they can be the outputs of other neurons.

2) Connections and weights :
- The network consists of connections, each connection providing the output of each one neurons on input to another neuron.
- Each connection is assigned a weight that represented its relative importance.
- A given neuron can have multiple input and output connections.

3) Propogation Function :
- The propagation Function computes the inputs to a neuron from the output of its predessesor neuron & their connections as a weighted Sum
- A bios term can be added to the result of the propagation.