

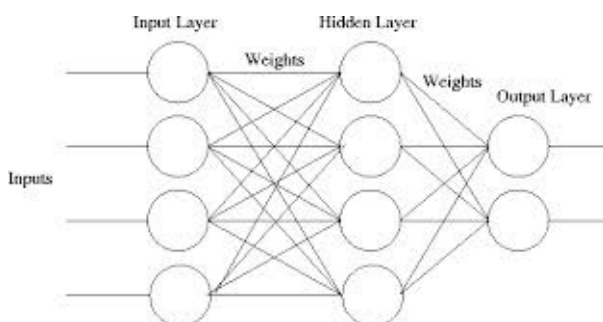
Model Solution of Question Paper AS-632 for Pre PhD (Computer Sc) 2014

Subject: Fundamental of Research in Science

Section A: All the following 16 very short answer questions to be attempted 16X 2 = 32

x. What are feed forward networks?

The feed forward networks are also artificial neural networks in which nodes (or neurons) propagate in forward direction and output is computed in that direction only without any error correction or back propagation. A general figure can be as follows where neurons, layers etc have usual meaning.



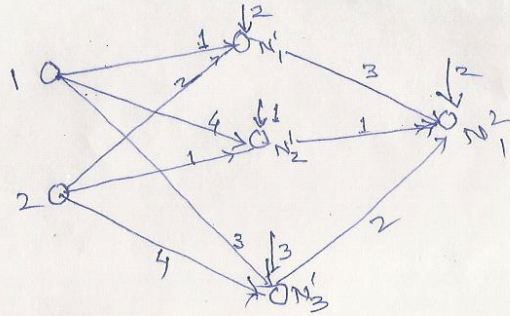
xi. Define the term bias.

Bias is a term which carries a weight and unit (one) input value attached to each neuron (node) in an ANN. The other connecting weights are multiplied with their respective inputs, therefore the change in overall activity at any node is dependent on each component i.e. weight and input. In case of bias, the change directly influences the net input activity at a node in ANN.

Section B: Attempt any FOUR questions. 4 X 17 = 68

6. Draw a simple 2-3-1 neural network and compute its output by taking your own weights, transfer functions and example data.

One typical simple example is given below. (Next page)



let inputs are 1, 2

Transfer function

$$f(x) = 3x$$

output calculation (write steps as usual)

Input at $N_1 = 1 \times 1 + 2 \times 2 + 2 \times 1 = 7$ } output at $N_1 = f(N_1) = f(7) = 21$

Input at $N_2 = 1 \times 4 + 2 \times 1 + 1 \times 1 = 7$ } output at $N_2 = f(N_2) = f(7) = 21$

Input at $N_3 = 1 \times 3 + 2 \times 4 + 3 \times 1 = 14$ } output at $N_3 = f(N_3) = f(14) = 42$

Input at $N_1^2 = 21 \times 3 + 21 \times 1 + 42 \times 2 = 168$

Add bias = $168 + 2 \times 1 = 170$ Total input at N_1^2

output at $N_1^2 = f(N_1^2) = f(170) = 510$

510