Artificial Intelligence

(Introduction to NNs)

Answer the following questions and write your answers in the predefined frames.

Student's Name:

Question 1:

The number of nodes in the input layer is 10 and in the hidden layer is 5. The maximum number of connections from the input layer to the hidden layer are:

a. 50
b. Less than 50
c. More than 50
d. It is an arbitrary value.

Question 2:

Statement 1: It is possible to train a network well by initializing all the weights as 0
Statement 2: It is possible to train a network well by initializing biases as 0

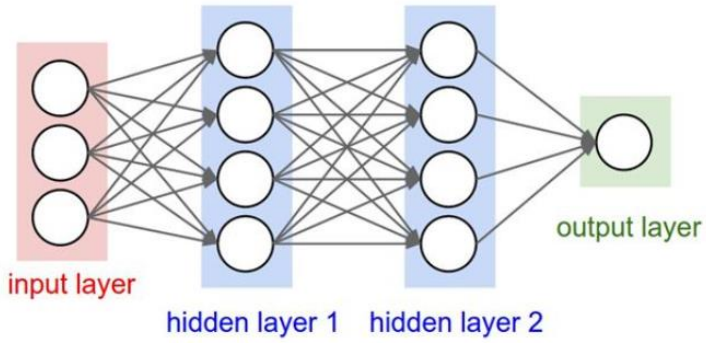
Which of the statements given above is true?

A) Statement 1 is true while Statement 2 is false
B) Statement 2 is true while statement 1 is false
C) Both statements are true
D) Both statements are false

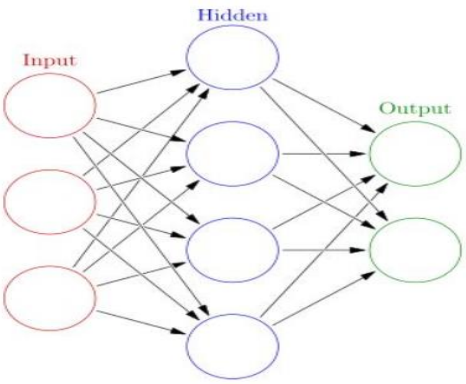
Question 3:

For a binary classification problem, which of the following architecture would you choose?

1.



2.



a. 1
b. 2
c. Any one of these
d. None of these

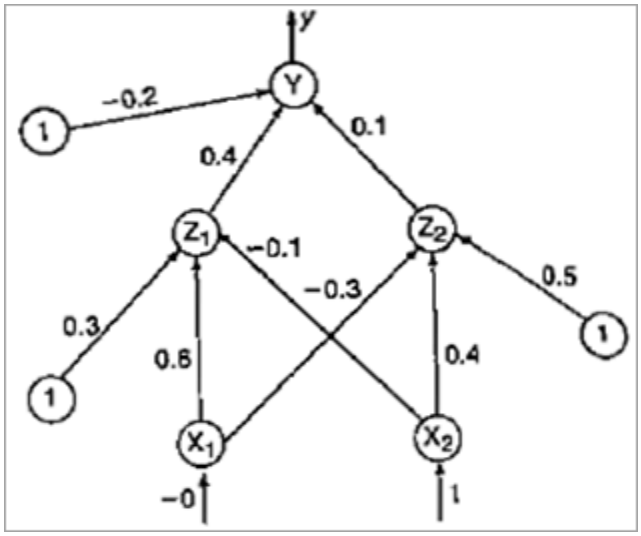
Question 4:

Backpropagation works by first calculation the gradient of …. and then propagating it backwords.

a. Sum of squared error with respect to inputs.
b. Sum of squared error with respect to weights.
c. Sum of squared error with respect to output
d. None of the above.

Question 5:

The following configuration of an MLP network is given (inputs: X1, X2, output: Y), where current weights and biases are displayed. Activation function is the sigmoid function, and the learning rate is 0,25.



Consider an input vector [0,1] with desired output 1. Calculate by hand the new weights after one cycle of backpropagation.