| S.NO	Questions	Mark	Level
1	Define Machine Learning	2	K1
2	Explain the types of Machine Learning	10	K2
3	Differentiate supervised and unsupervised Learning	2	K2
4	Differentiate classification and Regression problem	2	K2
5	What is generalization?	2	K1
6	Define classification model	2	K1
7	Explain Overfitting and Underfitting with example	6	K2
8	Differentiate bias and variance	2	K2
9.	Outline the structure and working of biological neuron	6	K2
10	Define ANN	2	K1
11	Explain working concept of McCulloch-Pitts Network	10	K2
12	Sketch the structure of McCulloch Pitts Neuron	2	K2
13	What is binary step function	2	K1
14	Implement Simple AND function using McCulloch-Pitts Network	5	K3
15	Implement Simple OR function using McCulloch-Pitts Network	5	K3
16	Illustrate the concept of perceptron with its learning algorithm	10	K2
17	Explain the various sigmoid function used in ANN	10	K2
18	Derive the gradient of Logistic function	6	K3
19	Implement OR function using perceptron	10	K3
20	Implement AND function using perceptron	10	K3
21	Implement XOR function using perceptron	10	K3
22	Why is it not possible to use perceptron to solve Non linearly separable problems? Prove with an example	10	K3
23	Explain Multilayer Perceptron with neat diagram.	10	K2
24	Differentiate between Linear and Non-linear functions.	2	K2
25	What is feed forward network?	2	K1
26	Write the difference between single layer and multilayer Perceptron.	2	K2
27	List and explain the loss functions used in multilayer Perceptron.	6	K2
28	Explain Gradient Descent with a neat sketch.	4	K2
29	What is an epoch?	2	K1
30	Write the weight updation algorithm.	2	K2
31	What is meant by learning rate?	2	K1
32	Explain the types of gradient descent with its algorithm.	10	K2
33	Differentiate stochastic Gradient descent and mini batch gradient descent	2	K2
34	Consider below given neural network, Assume that the neurons have a sigmoid activation function, actual output of y is 0.5 and learning rate is 1. Perform a forward pass and back pass on the network.	16	K3
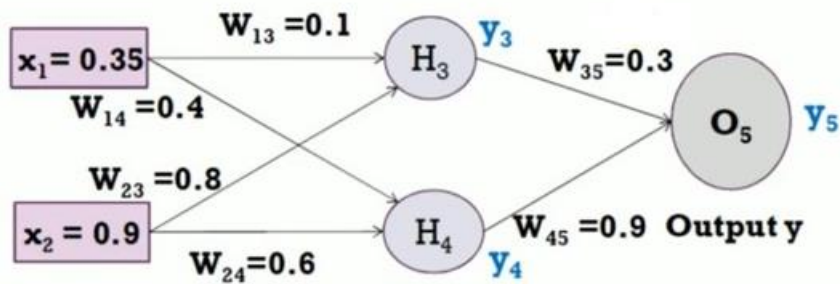
| 35 | Consider the following multilayer feedforward network | 16 | K3 |
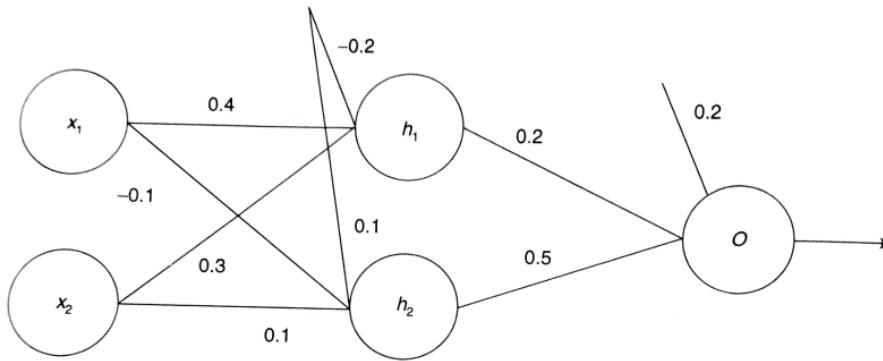
Here $(x_1, x_2) = (1, 0)$ and $O = (0.3)$ Using the backpropagation algorithm, show how the weights and bias are updated after one epoch.

| 36 | | 16 | K3 |

Consider below given neural network. Assume that the neurons have a sigmoid activation function, bias θ (given in dig.), actual output of y is 1 and learning rate is 0.9. Perform a forward pass and back pass on the network for 2 iterations.
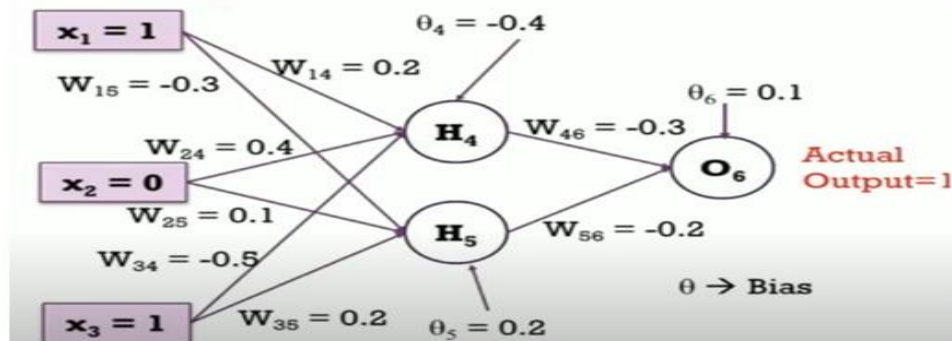
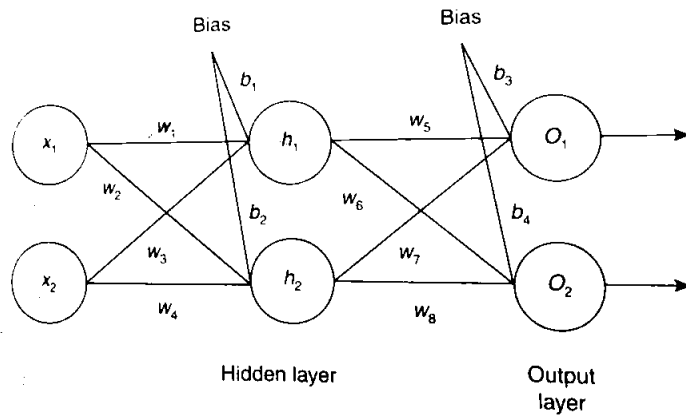| 37 | Consider the following multilayer feedforward network. | 16 | K3 |

Use the weights and bias given below.

W1	w2	w3	w4	w5	w6	w7	w8
-0.1	0.2	0.6	-0.3	0.4	0.6	0.5	-0.2

b1	b2	b3	b4
-0.1	0.3	0.4	0.2

x1	x2	o1	o2
0	1	0	1

Using the backpropagation algorithm, show how the weights and bias are updated after one epoch with learning rate 0.1.

38	Illustrate the steps in back propagation algorithm	5	K2
39	Explain any four-optimization techniques	10	K2
40	Compare vanishing gradient and exploding gradient problems	2	K2
41	Identify the two solutions for exploding gradient problem	2	K2
42	Explain two most common techniques for weight initialization	2	K1
43	What is deep learning	2	K1
44	Give some applications of deep learning	2	K1