Exam. Code: 0924
Sub. Code: 6522

2054

B.E. (Information Technology)-6th Semester

PCIT-602: Machine Learning

Time allowed: 3 Hours **Max. Marks: 50**

NOTE: ***Attempt five questions in all, including Question No. I which is compulsory and selecting two questions from each Part.***

x-x-x

1	(a) How prediction is affected by modifying weights? (b) What is the role of learning rate parameter on weight updation? (c) What is the Gaussian mixture model? (d) What will be the value of sigmoid function if score is zero? (e) Why is residual sum of square method not used in classification?	(10)
	Part A	
2	(a) What do you understand by underfitting and overfitting? What are the various methods to overcome these issues? (b) How classification is different from regression method? Find the class of the data, if feature X0 = 1, X1= 4 and X2 = 3 theta0=2, theta1=2, theta2= -1.5. Take threshold as 0.7.	(5) (5)
3.	Solve this problem using decision tree and draw final tree.	(10)
4.	Design neural network for XNOR gate. (using numerical example)	(10)
	Part B	
5.	What is the principle component analysis? How is it different from LDA and ICA methods? What is the role of covariance in PCA?	(10)
6.	Assign data points to two clusters in the following data using K means clustering.	(10)
7	Explain following, each using a numerical example (a) ICA (b) LDA	(5) (5)

X1	T	T	T	T	T	F	F	F	T
X2	F	T	T	F	T	F	F	F	F
Y	YES	YES	YES	YES	NO	YES	NO	NO	NO

Points	P1	P2	P3	P4	P5	P6
X1	1	2	8	4	6	7
X2	1	2	7	5	4	6

x-x-x