JAYPEE UNIVERSITY OF INFORMATRION TECHNOLOGY, WAKNAGHAT

TEST -3 EXAMINATION- DECEMBER 2019

M.Tech I Semester

COURSE CODE: 13M1WCI331   MAX. MARKS: 35

COURSE NAME: Machine Learning

COURSE CREDITS: 03   MAX. TIME: 2 HR

Note: All questions are compulsory. Carrying of mobile phone during examinations will be treated as case of unfair means. Q1: CO 4, Q2:CO5, Q3:CO6, Q4: CO5

1. What do you mean by **a priori** property? Explain with suitable example. Consider a shopping mall basket as shown below:

Customer	Items
C1	Milk, egg, bread, chip
C2	Egg, popcorn, chip, beer
C3	Egg, bread, chip
C4	Milk, egg, bread, popcorn, chip, beer
C5	Milk, bread, beer
C6	Egg, bread, beer
C7	Milk, bread, chip
C8	Milk, egg, bread, butter, chip
C9	Milk, egg, butter, chip

Let the minimum support is 40% and minimum confidence is 80%. Generate the information using Apriori algorithm to describe the behavior of customers.   [10]

2. What do you mean by Artificial Neural Networks? Draw structure of 3 layers feed forward artificial neural network. Explain back propagation neural network algorithm with suitable pseudo code. Why ANNs are known as robust machine learning algorithms?   [10]

3. Consider 8 persons showing interest in personal loan from a reputed public sector bank. Let point(x,y,z) represents their age(in years), salary(in Indian rupees) and income from other sources(in Indian rupees). So the data is represented as Ram(20,35K,10K), Sita(30,25K,5K), Laxman(50,20K,12K), Anil(40,20K,2K), Prem(45,50K,15K), Sunil(21,46K,15K), Sourabh(23,32K,11K) and Meenu(32,27K,13K). The bank manager's task is to check whether the person is rich, medium earning or poor based on the given data. Use k-means clustering algorithm technique based on Euclidean distance to ease manager's task.   [10]

4. What is the difference between classification and prediction? Write the mathematical expression for all types of regression analysis techniques.   [5]