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Internal Assessment Test II –April 2019

Sub:	Machine Learning					Sub Code:	15EC834	Branch:	TCE
Date:	20/04/2019	Duration:	90 min's	Max Marks:	50	Sem / Sec:	A	OBE	

Answer any FIVE FULL Questions

1. Draw the perceptron network with the notation. Derive an equation of gradient descent rule to minimize the error.
2. Write an algorithm for Back Propagation Algorithm which uses stochastic gradient descent method. Comment of the effect of adding momentum to the network.
3. (a) Explain MAP and ML hypothesis.
3. (b) Explain appropriate problems for Neural Network learning.
4. The following table gives the data set. Classify the following instance using Naïve Bayes Classifier: $\langle Refund = No, Married, Taxable Income = 120K \rangle$ (Refer **Table-1**)
5. Describe the maximum likelihood hypothesis for predicting probabilities.
- 6.(a) Write the short note on features of Bayesian Learning method.

MARKS	CO	RBT
[10]	CO2	L2
[10]	CO2	L3
[5]	CO2	L1
[5]	CO2	L1
[10]	CO2	L4
[10]	CO2	L3
[05]	CO2	L1

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[05]	CO2	L3
[05]	CO2	L2

6. (b) Consider a medical diagnosis problem here 2 alternative hypothesis are present i.e. the patient has a particular form of cancer and the patient does not with the prior knowledge that, over the entire population only 0.8% have this disease. The lab test has the indicator of the disease as follows: correct positive in 98% of the cases and correct negative result in 97% of the case. If a new patient for whom the lab test returns a positive result should we diagnose the patient as having cancer or not?
7. Explain K-Nearest Neighbor learning algorithm with example.

[05]	CO2	L2
[10]	CO3	L2

Table-1 (Question No. 4)

Tid	Refund	Marital Status	Taxable Income	Cheat
1	Yes	Single	125K	No
2	No	Married	100K	No
3	No	Single	70K	No
4	Yes	Married	120K	No
5	No	Divorced	95K	Yes
6	No	Married	60K	No
7	Yes	Divorced	220K	No
8	No	Single	85K	Yes
9	No	Married	75K	No
10	No	Single	90K	Yes

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