Total No. of Printed Pages:1

SUBJECT CODE:- 8159

FACULTY OF ENGINEERING AND TECHNOLOGY

M.E.(CSE) Examination Nov/Dec 2015

Machine Leaning

(Revised)

[Time: Three Hours] **[Max. Marks: 80]**

"Please check whether you have got the right question paper."

N.B i) Solve any two questions from each section.

ii) Assume suitable data if necessary and state it clearly.

Section A

Q.1 a) What are the important objectives of machine learning? 10
Discuss different important examples of machine Learning.

b) Explain find – S algorithm with given example. Give its application. 10

Explain	SKY	Air temp.	Humidity	Wind	Water	Fore cast	Enjoy sport
1	Sunny	Warm	Normal	Strong	Warm	Same	Yes
2	Sunny	Warm	High	Strong	Warm	Same	Yes
3	Rain	Cold	High	Strong	Warm	Change	No
4	Sunny	Warm	High	Strong	Cool	Change	Yes

Q.2 a) Consider the following set of training example : 15

Instance	Classification	a 1	a 2
1	+	T	T
2	+	T	T
3	-	T	F
4	+	F	F
5	-	F	T
6	-	F	T

i. What is the entropy of this collection of training example with respect to the target function classification?

ii. What is the information gain of a2 relative to these training examples?

b) What are issues in decision tree learning? How are they overcome? 05

Q.3 a) What are the steps in Back propagation algorithm? Why a Multilayer neural network is required? 10

b) How to estimate difference in error between two hypotheses using error $D^{(h)}$ and error $S^{(h)}$? 10

Section – B

Q.4 a) How is Naïve Bayes algorithm useful for learning and classifying text? 10

b) What are Bayesian Belief nets? Where are they used? Can it solve all types of problems? 10

Q.5 a) Describe k-nearest neighbor algorithm. Why is it called instance based learning? 10

b) Describe these terms in brief (I) PAC Hypothesis (II) Mistake bound model of learning 10

Q.6 a) What are the steps in Reproduction cycle? Which type of applications are suitable for using GA? 10

b) Describe in brief (any two) 10

i. Lazy and eager learning

ii. Genetic programming and parallelizing GA

iii. EM Algorithm

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