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P.E.S. College of Engineering, Mandya - 571 401
(An Autonomous Institution affiliated to VTU, Belagavi)
Seventh Semester, B.E. - Computer Science and Engineering
Semester End Examination; February - 2022
Machine Learning

Time: 3 hrs   *Max. Marks: 100*

Course Outcomes

The Students will be able to:
CO1: Students can Understand the different learning models
CO2: Students can Analyze the different machine learning algorithm
CO3: Students can build their own models using machine learning models.
CO4: Students can know the methods and approaches to handle the machine learning algorithm
CO5: Students can develop various learning methods

<u>*Note:*</u> *I) **PART - A** is compulsory. **Two** marks for each question.*
     *II) **PART - B**: Answer any <u>**Two**</u> sub questions (from a, b, c) for Maximum of **18 marks** from each unit.*

Q. No.	Questions	Marks	BLs	COs	POs
	I : PART - A	**10**			
I a.	List the features for a well defined learning problem.	2	L1	CO1	PO1,2
b.	Describe decision tree learning.	2	L2	CO2	PO1,2
c.	Mention different reasons of Bayesian learning methods relevant to machine learning.	2	L2	CO3	PO1,2
d.	Define K-nearest neighbor learning.	2	L2	CO4	PO1,2
e.	Define prolog.	2	L2	CO5	PO1,2
	II : PART - B	**90**			
	UNIT - I	**18**			
1 a.	Explain different applications of machine learning which are successful.	9	L2	CO1	PO1,2,3
b.	Illustrate how a function approximation algorithm is chosen, while designing a learning system?	9	L3	CO1	PO1,2
c.	List and describe the unanswered issues of FIND-S algorithm.	9	L2	CO1	PO1,2
	UNIT - II	**18**			
2 a.	Write a decision tree for the concept of play tennis. Describe different characteristics that are suited for decision tree learning.	9	L3	CO1	PO1,2
b.	Explain hypothesis space search in decision tree learning along with its capabilities and limitations using ID3.	9	L2	CO2	PO1,2
c.	Describe the characteristics of appropriate problems for neural network learning.	9	L2	CO2	PO1,2

	UNIT - III	**18**			
3 a.	Explain the features of Bayesian learning methods with example.	9	L2	CO3	PO1,2
b.	Illustrate Brut force map learning algorithm.	9	L3	CO3	PO2,3
c.	Describe maximum likelihood and least squared error hypothesis.	9	L2	CO3	PO1,2
	UNIT - IV	**18**			
4 a.	List and describe different instance based learning methods with its advantages and disadvantages.	9	L2	CO4	PO1,2
b.	Explain the issues and approaches (remarks) for applying K-nearest neighbor algorithm with example.	9	L2	CO4	PO1,2
c.	Illustrate Radial basis functions.	9	L3	CO4	PO1,2
	UNIT - V	**18**			
5 a.	Write and explain sequential covering algorithm for learning a disjunctive set of rules with example.	9	L3	CO5	PO1,2
b.	Describe different key dimensions in the design space of learning rule sets.	9	L2	CO5	PO1,2
c.	Explain learning sets of first order rules using FOIL.	9	L2	CO5	PO1,2

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