U.S.N | | | | | | | | | | |

P.E.S. College of Engineering, Mandya - 571 401

(An Autonomous Institution affiliated to VTU, Belagavi)

Sixth Semester, B.E. - Information Science and Engineering

Semester End Examination; July / Aug. - 2022

Machine Learning

Time: 3 hrs *Max. Marks: 100*

Course Outcomes

The Students will be able to:

CO1: Understand types of Machine learning algorithms.

CO2: Implement various classification algorithms using Python and apply techniques for building a good data set.

CO3: Implement dimensionality reduction techniques using Python and perform model evaluation.

CO4: Implement Linear Regression, k-means and artificial neural network methods using Python.

CO5: Understand fundamentals of Deep learning and Tensor flow.

***Note**: I) **PART - A** is compulsory. **Two** marks for each question.*

*II) **PART - B**: Answer any **Two** sub questions (from a, b, c) for a Maximum of **18 marks** from each unit.*

Q. No.		Questions	Marks	BLs	COs	POs
		I : PART - A	**10**			
I	a.	Define Supervised Learning with examples.	2	L1	CO1	PO1
	b.	Explain, Why KNN is called as lazy algorithm?	2	L2	CO2	PO1
	c.	List the first four steps of extracting PCA.	2	L1	CO3	PO1
	d.	Define Soft Clustering.	2	L1	CO4	PO1
	e.	Define the mathematical notation for Discrete Convolution.	2	L1	CO5	PO1
		II : PART - B	**90**			
		UNIT - I	**18**			
1	a.	Explain the different types of machine learning techniques.	9	L2	CO1	PO1
	b.	Implement SVM algorithm using Skleran for Iris dataset and visualize the results.	9	L3	CO1	PO2
	c.	Explain the roadmap for building machine learning systems.	9	L2	CO1	PO1
		UNIT - II	**18**			
2	a.	Explain the three impurity measures of Decision tree learning.	9	L2	CO2	PO1
	b.	Explain how to perform one hot encoding on nominal features?	9	L3	CO2	PO2
	c.	Write python code snippets for the following: i) Eliminate samples with missing data ii) Imputing missing values iii) Creating an example dataset	9	L2	CO2	PO1
		UNIT - III	**18**			
3	a.	Implement PCA for Wine dataset using Sklearn.	9	L2	CO3	PO2
	b.	Explain K-fold cross validation for performance evaluation.	9	L2	CO3	PO1
	c.	Explain with python code snippets how logistic regression model get trained for document classification.	9	L2	CO3	PO2

Contd… 2

	UNIT - IV	**18**		
4 a.	Explain Elbow method to find optimum number of clusters. Write its implementation in Python.	9	L3	CO4 PO2
b.	Explain Simple linear regression and Multiple linear regression.	9	L2	CO4 PO1
c.	Explain the process of forward propagation to calculate the output of an MLP model.	9	L2	CO4 PO2
	UNIT - V	**18**		
5 a.	Explain the following concepts: i) Tensor flow ranks and tensors ii) Placeholders in tensor flow	9	L2	CO5 PO1
b.	Explain sub sampling in CNN.	9	L2	CO5 PO1
c.	Explain the following: i) The effect of zero padding in a convolution ii) Performing a discrete convolution in one dimension iii) Size of convolution output	9	L2	CO5 PO1

* * * *