



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	9	L2	CO2	PO1
	ii) Imputing missing values				
	iii) Creating an example dataset				
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

UNIT - IV**18**

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|------|--|---|------------|
| 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**

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| 5 a. | Explain the following concepts: | | |
| | i) Tensor flow ranks and tensors | 9 | L2 CO5 PO1 |
| | ii) Placeholders in tensor flow | | |
| b. | Explain sub sampling in CNN. | 9 | L2 CO5 PO1 |
| c. | Explain the following: | | |
| | i) The effect of zero padding in a convolution | 9 | L2 CO5 PO1 |
| | ii) Performing a discrete convolution in one dimension | | |
| | iii) Size of convolution output | | |

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