(Please write your Exam Roll No.) Exam Roll No. .....

END TERM EXAMINATION

FIFTH SEMESTER [BCA] DECEMBER 2025-JANUARY 2026

Paper Code: BCAT-311 **Subject: Machine Learning with Python**

Time: 3 Hours **Maximum Marks: 60**

Note: Attempt all questions as directed. Internal Choice is indicated.

Q1 Attempt **any four** of the following **(4x5=20)**

a) Explain Different types of Machine learning Techniques.
b) What is Hebbnet in machine learning?
c) Explain with a suitable example about hierarchical clustering.
d) Explain curse of dimension and why is it important to reduce dimensions.
e) What is a confusion Matrix. Explain all its components with example.
f) What do you mean by perceptron.
g) Write all the applications of artificial neural networks
h) Differentiate in detail about bagging and boosting.

Q2 Write and explain about linear and logistic regression. Also write the detailed algorithm/ python code for the same. **(10)**

OR

Q3 Find linear regression equation for following two sets of data. X is an independent variable and y is a dependent variable (10)

X	2	4	6	8
Y	3	7	5	10

Predict y for x=4.5

Q4 Explain Support vector machine. Explain hyperplane, kernel, support vectors, hard and soft Margin. **(10)**

OR

Q5 Explain in detail about ensemble learning. Explain Bagging and Boosting. Also explain the working of random Forest. **(10)**

Q6 What do you mean by unsupervised learning. What are the various unsupervised learning techniques Explain in detail about K means clustering? **(10)**

OR

Q7 What is an Artificial neural network. Explain in detail about multilayer neural networks. **(10)**

Q8 Given the data in table. Reduce the dimensions from 2 to 1 using principal component analysis. **(10)**

X1	4	8	13	7
X2	11	4	5	14

OR

Q9 Explain the concept of back Propagation algorithm. Write a complete example to explain and update weight as required for back propagation Algorithm. **(10)**

****

P.T.O.

CamScanner