

# Gandhi Institute of Engineering and Technology University, Odisha, Gunupur (GIET University)



B. Tech (Sixth Semester – Regular/Supplementary) Examinations, April 2025

**21BCDPE36004/22BCDPE36004 – MACHINE LEARNING**

(CSEDS)

Time: 3 hrs

Maximum: 70 Marks

(The figures in the right hand margin indicate marks)

## PART – A

(2 x 5 = 10 Marks)

Q.1. Answer **ALL** questions

- |                                                                    | CO # | Blooms Level |
|--------------------------------------------------------------------|------|--------------|
| a. Compare and contrast linear regression and logistic regression. | CO1  | K2           |
| b. What is a hyper parameter? List few hyperparameters             | CO2  | K1           |
| c. What is meant by Bootstrapping?                                 | CO3  | K2           |
| d. Discuss the need of pooling in CNN                              | CO4  | K1           |
| e. Give an example of fully connected layer in CNN                 | CO4  | K2           |

## PART – B

(15 x 4 = 60 Marks)

Answer **all** the questions

- |                                                                                                                                                                    | Marks | CO # | Blooms Level |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------|------|--------------|
| 2. a. Define Machine Learning. Explain the different types of machine learning.                                                                                    | 8     | CO1  | K1           |
| b. Explain Regression and Classification with an example                                                                                                           | 7     | CO1  | K1           |
| (OR)                                                                                                                                                               |       |      |              |
| c. What is Linear Regression and Logistic Regression? How does they differ in view of real world applications.                                                     | 8     | CO1  | K2           |
| d. Explain the concepts of Numpy, Pandas and Matplotlib with suitable code.                                                                                        | 7     | CO2  | K1           |
| 3.a. Explain Decision tree with an example                                                                                                                         | 10    | CO2  | K2           |
| b. Elaborate on cross – validation approach                                                                                                                        | 5     | CO3  | K2           |
| (OR)                                                                                                                                                               |       |      |              |
| c. Explain Naïve Bayes Classifier with help of an example                                                                                                          | 9     | CO3  | K2           |
| d. List few type of clustering algorithms used in Machine Learning                                                                                                 | 6     | CO3  | K2           |
| 4.a. Explain Random forest with an example                                                                                                                         | 10    | CO3  | K2           |
| b. Describe the confusion matrix with help of an example                                                                                                           | 5     | CO2  | K2           |
| (OR)                                                                                                                                                               |       |      |              |
| c. List and Explain different evaluation metrics in Machine learning                                                                                               | 10    | CO2  | K2           |
| d. Elaborate the necessary steps for in hyperparameter tuning for increasing the accuracy of the model                                                             | 5     | CO2  | K3           |
| 5.a. Cluster the following data set using the K-means algorithm with an initial value of objects 2 and 5 with coordinate values (4,6) and (12,4) as initial seeds. | 15    | CO3  | K2           |

Objects	1	2	3	4	5
X – Coordinate	2	4	6	10	12
Y – Coordinate	4	6	8	4	4

(OR)

- |                                                                                                             |   |     |    |
|-------------------------------------------------------------------------------------------------------------|---|-----|----|
| b. Explain the role of filter, padding and strides in a convolutional layer of a CNN with an example.       | 8 | CO4 | K2 |
| c. With a help of a diagram, explain the basic building blocks of Convolutional Neural Network architecture | 7 | CO4 | K2 |

--- End of Paper ---