

Total Pages—2

RNLKWC/VIS/ML/ DSE3T/22

**End Semester Examination, 2022**

**Semester - VI**

**Machine Learning**

**PAPER - DSE3T**

*Full Marks : 40*

*Time : 2 Hours*

**Group - A**

1. **Attempt any five questions :** **5x2=10**
- a) What is confusion matrix.
  - b) What does the term "deep" signify in deep learning ?
  - c) What is lasso penalty ?
  - d) What is cross validation ?
  - e) Why the Artificial Neural Network (ANN) is so called artificial ?
  - f) What is the difference between learning and training ?
  - g) What is the purpose of data normalization in machine learning ?
  - h) What do you mean by overfitting ?

**Group - B**

**Attempt any four questions :** **4x5=20**

2. Consider the following sample of 8 students specifying their fast food liking. Construct the confusion matrix and find the accuracy. **4+1**

Individual Sample No.	I	II	III	IV	V	VI	VII	VIII
Actual Classification	0	1	0	1	0	1	1	0
Predicted Classification	0	0	0	1	1	1	0	0

*(Turn Over)*

3. What do you mean by support vector machine ?
4. How does parametric regression differ from non-parametric regression ? Give two examples of non-parametric regression. 3+2
5. Explain in detail the k-nearest neighbour (KNN) classification algorithm. 5
6. What is kernel trick in SVM classifier ? Define confusion matrix. 3+2
7. Write a short note on : PCA 5

**Group - C**

**Attempt any one question : 1x10=10**

8. Consider following table. Use linear regression to obtain the machine learning model and thereafter find the value of  $f(20)$  8+2

$x$	$y = f(x)$
2	6
4	7
7	10
10	12
12	15

9. What do you mean by clustering ? Explain in detail the K-means clustering technique. 3+7