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Roll No. ....

Total Pages : 3

**003506**

**Jan. 2022**  
**B.Tech. (CE) Vth Semester**  
**Machine Learning (PEC-CS-D-501)**

Time : 90 Minutes]

[Max. Marks : 25

*Instructions :*

1. *It is compulsory to answer all the questions (1 mark each) of Part-A in short.*
2. *Answer any three questions from Part-B in detail.*
3. *Different sub-parts of a question are to be attempted adjacent to each other.*

**PART-A**

1. (a) How distance is calculated using Euclidean distance? (1)
- (b) Differentiate between SVM and Linear Regression. (1)
- (c) How is Classification different from Clustering? (1)
- (d) What is meant by variance? (1)
- (e) Explain reinforcement learning? (1)
- (f) Name the components in time series. (1)
- (g) What is PCA used for? (1)

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- (h) How outliers can be handled? (1)
- (i) Name *two* regularizations of linear regression. (1)
- (j) Write *two* applications of deep learning. (1)

**PART-B**

- 2. (a) Distinguish between overfitting and underfitting. (2)
- (b) Explain the steps involved in performing classification by neural network. (3)
- 3. (a) Differentiate between bagging and boosting techniques. (2)
- (b) Illustrate K means clustering algorithm with an example. (3)
- 4. Consider the training data in the following table where Play is a class attribute. In the table, the Humidity attribute has values "L" (for low) or "H" (for high), Sunny has values "Y" (for yes) or "N" (for no), Wind has values "S" (for strong) or "W" (for weak), and Play has values "Yes" or "No".

Humidity	Sunny	Wind	Play
L	N	S	No
H	N	W	Yes
H	Y	S	Yes
H	N	W	Yes
L	Y	S	No

What is class label for the following day (Humidity=L, Sunny=N, Wind=W), according to naïve Bayesian classification? (5)

- 5. What is machine learning and its techniques? How it is different from artificial intelligence and deep learning? (5)
- 6. (a) Explain how Support Vector Machine can be used for classification of linearly separable data? (2)
- (b) Explain linear regression and how best fit line can be achieved? (3)

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