PRESIDENCY UNIVERSITY
BENGALURU

SCHOOL OF ENGINEERING
MID TERM EXAMINATION - OCT 2023

Semester : Semester VII - 2020   **Date :** 30-OCT-2023
Course Code : ECE3025   **Time :** 11:30AM - 1:00PM
Course Name : Sem VII - ECE3025 - Artificial Intelligence With Python   **Max Marks :** 60
Program : ECE   **Weightage :** 30%

Instructions:
(i) Read all questions carefully and answer accordingly.
(ii) Question paper consists of 3 parts.
(iii) Scientific and non-programmable calculator are permitted.
(iv) Do not write any information on the question paper other than Roll Number.

PART A

ANSWER ALL THE QUESTIONS   **(5 X 2 = 10M)**

1. What exactly does the term "precision and recall" mean? Give an example.

                                                        (CO1) [Knowledge]

2. In the context of the Naive Bayes algorithm, what do prior probability, likelihood, and marginal likelihood mean?

                                                        (CO1) [Knowledge]

3. In the decision tree algorithm, there are two parameters called entropy and information gain. What is the role of both parameters?

                                                        (CO1) [Knowledge]

4. Mention any two unsupervised learning algorithms.

                                                        (CO2) [Knowledge]

5. The aim of any machine learning model is to find the best fit line. For that, there are two important parameters: the model parameter and the hyperparameter. What is the role of both parameters?
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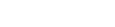   (CO2) [Knowledge]

PART B

ANSWER ALL THE QUESTIONS   **(2 X 15 = 30M)**

6. (i) Data preprocessing plays a crucial role in machine learning. Let us assume that this is the data set we are working with ([-2.9,3.3,2.1,0
    (ii) Mean removal is one of the pre-processing technique. Explain it (5M)

                                                        (CO1) [Comprehension]

7. How would you predict who will renew their subscription next month? What data would you need to solve this? What analysis would

<div align="right">(CO2) [Comprehension]</div>

PART C

ANSWER THE FOLLOWING QUESTION   **(1 X 20 = 20M)**

8. **Design Decision tree classifier, consider all the features, and play tennis as the target feature. Check whether the person will play tennis**

Day	Outlook	Temperature	Humidity	Wind	Play Tennis
D1	Sunny	Hot	High	Weak	No
D2	Sunny	Hot	High	Strong	No
D3	Overcast	Hot	High	Weak	Yes
D4	Rain	Mild	High	Weak	Yes
D5	Rain	Cool	Normal	Weak	Yes
D6	Rain	Cool	Normal	Strong	No
D7	Overcast	Cool	Normal	Strong	Yes
D8	Sunny	Mild	High	Weak	No
D9	Sunny	Cool	Normal	Weak	Yes
D10	Rain	Mild	Normal	Weak	Yes
D11	Sunny	Mild	Normal	Strong	Yes
D12	Overcast	Mild	High	Strong	Yes
D13	Overcast	Hot	Normal	Weak	Yes
D14	Rain	Mild	High	Strong	No

<div align="right">(CO1) [Application]</div>