Paper / Subject Code: 89384 / AI and DS - 1

1T01236 - T.E.(Information Technology Engineering)(SEM-VI)(Choice Base Credit Grading System) (R-20-21) (C Scheme) / 89384 - AI and DS - 1

QP CODE: 10015120

DATE: 15/12/2022

Time: 3 Hrs   **Maximum marks = 80**

Note: 1) Question one is compulsory. Answer any 3 out of questions 2 to 6.
      2) Each sub question of questions 2 to 6 carries 10 marks

Q1. Solve **any 4** out of 6, each question carries 5 marks.

   a. What is bidirectional search?
   b. Explain what role is played by Correlation and Covariance in EDA?
   c. What are the Different Types of Machine Learning?
   d. Draw and explain structure of rational agent
   e. Explain various measures of the central tendencies of distribution.
   f.   What is the Difference between Univariate, Bivariate, and Multivariate analysis?

Q2 a. Explain the Confusion Matrix with respect to Machine Learning Algorithms. What is a False Positive and False Negative and how are they significant?
Q2 b. What is PEAS? State and explain PEAS of automated taxi driver.

Q3 a. In detail, explain steps in the Data Science Project.
Q3 b. Write a note on Hill climbing. Explain an application of it.

Q4 a. Given jugs of 4 and 9 litres measure 1 and 3 litres.
Q4 b. What are the steps of Exploratory Data Analysis?

Q5 a. What is ANOVA technique? Explain different types of ANOVA.
Q5 b. What are the different types of plans?

Q6 a. Explain Data Visualization and its importance in data analytics?
Q6 b. Consider you are performing ML for predicting housing prices you have trained three models and following data summarizes the predicted house price by each model for 5 different trial runs.

Model Code	House Price Predicted (Lakh Rs)				
	Trial 1	Trial 2	Trial 3	Trial 4	Trial 5
A	3.5	3.4	3.8	3.5	3.4
B	3.9	3.8	3.7	3.9	3.6
C	3.5	3.3	3.6	3.5	3.8

Perform One way ANOVA F Test on this data and comment on whether the mean house price predicted by models A, B, C are same with level of significance 0.05. (Use of F Table is allowed)

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