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BCADS 1402

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Following Paper ID and Roll No. to be filled in your Answer Book.

PAPER ID : 15813 Roll No. 1 2 2 0 2 5 8 0 8 2

BCA Examination 2023-24

(Even Semester)

DATA SCIENCE

Time : Three Hours] *[Maximum Marks : 60*

Note :– Attempt all questions.

SECTION – A

1. Attempt all parts of the following : $8 \times 1 = 8$

   (a) What is data science? Name popular programming langauges used in data science.

   (b) What is the difference between supervised and unsupervised learning?

   (c) How do you create a basic line plot using Matplotlib?

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(d) How do you merge two data frames in Pandas?

(e) What is the difference between Numy array and a Python list?

(f) What is the difference between loc and iloc in Pandas?

(g) What is the purpose of the "groupby" method in Pandas?

(h) What is the difference between silicing and indexing in Numpy?

SECTION – B

2. Attempt any two parts of the following : $2 \times 6 = 12$

(a) You are given a data set on cancer detection. You've built a classification model and achieved an accuracy of 96%. Why shouldn't you be happy with your model performance? Discuss as what you can do about it?

(b) What doyou understand from pie chart? Draw a pie chart and interpret it.

(c) How to measure the performance of regression model? Differentiate between MSE and RMSE.

(d) What do you understand by term data science? Explain different stages or life cycle of data science.

SECTION – C

Note :– Attempt all questions. Attempt any two parts from each questions. 8×5=40

3. (a) What is cluster analysis?

   (b) WAP to creating dataframe from dictionary.

   (c) Illustrate the concept of logistic regression in detail.

4. (a) Explain overfitting and underfitting.

   (b) Explain the advanced ensemble learning techniques in detail.

   (c) Write a program to create 1D, 2D, 3D numpy arrays with suitable example.

5. (a) How the classification models can be evaluated? Explain in detail.

   (b) Explain the importance of feature selection methods in machine learning.

(c) Write challenges of machine learning.

6. (a) Differentaite the bar graph and histogram in matplotlib.

(b) Explain simple linear regression model.

(c) Name and explain some popular libraries of python for data science.

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