

# 315326

**12526**

**3 Hours / 70 Marks**

Seat No. 

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- Instructions* – (1) All Questions are *Compulsory*.
- (2) Answer each next main Question on a new page.
- (3) Illustrate your answer with neat sketches wherever necessary.
- (4) Figures to the right indicate full marks.
- (5) Assume suitable data, if necessary.
- (6) Mobile Phone, Pager and any other Electronic Communication devices are not permissible in Examination Hall.

**Marks**

- 1. Attempt any FIVE of the following: **10****
- a) Define Data Analytics.
- b) State the central limit theorem.
- c) Define Kurtosis.
- d) Define a slicer in Excel.
- e) Name four common chart types in Excel.
- f) State the use of the Pylot module in Matplotlib.
- g) List any two formats in which Matplotlib plots can be saved.

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- 2. Attempt any THREE of the following: 12**
- a) Describe the steps of the Data Analytics life cycle.
  - b) Construct a box plot for the dataset –  
[12, 15, 14, 10, 18, 20, 22]
  - c) Differentiate between Pivot table and Pivot chart. (Any four points)
  - d) Describe the purpose of a pie chart slice explosion.
- 3. Attempt any THREE of the following: 12**
- a) Explain the importance of normal distribution in statistics.
  - b) Differentiate between correlation and regression. (Any four points)
  - c) Write any four advantages of line chart.
  - d) Describe Matplotlib and state any four types of plots it supports.
- 4. Attempt any THREE of the following: 12**
- a) Explain variance and standard deviation with an example.
  - b) Explain Binomial distribution with example.
  - c) Describe the role of dashboards in consolidating different Excel visualization and control.
  - d) Write a Python program to plot a histogram of student marks (out of 100). Add a title and axis labels.
  - e) Write a Python program to create a bar chart using Matplotlib for displaying the sales of five products. Add appropriate title, axis labels and save the chart in PNG format.
- 5. Attempt any TWO of the following: 12**
- a) A dataset of student's score is given as [17, 5, 12, 10, 8, 20, 10, 15, 12, 6]. Calculate mean, median and mode.
  - b) Determine skewness for the dataset [1, 2, 2, 3, 10].
  - c) A company maintains sales data across different regions and products. Write a stepwise procedure to create a Pivot table to summarize sales by region.

**6. Attempt any TWO of the following:****12**

- a) A fair coin is tossed three times. Find the probability of getting:–
- exactly two heads
  - at least two heads.
- b) The monthly household expenditure of a family is given below. Represent it using a pie chart. Add data labels and explode the food slice.
- Rent = Rs. 5000/-  
Food = Rs. 3000/-  
Education = Rs. 1500/-  
Entertainment = Rs. 500.
- c) Explain the role of labels, titles and legends in Matplotlib plots with suitable example.
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