Printed Page:-04 Subject Code:- NPGDM035

Roll. No:

NOIDA INSTITUTE OF ENGINEERING AND TECHNOLOGY,NIET BUSINESS SCHOOL GREATER NOIDA

(An Autonomous Institute Affiliated to AKTU, Lucknow)

PGDM

TRIMESTER: III - THEORY EXAMINATION (2024- 2025)

Subject: Introduction to Business Analytics

Time: 2.5 Hours Max. Marks: 60

General Instructions:

IMP: Verify that you have received the question paper with the correct course, code, branch etc.

1. This Question paper comprises of three Sections -A, B, & C. It consists of Multiple Choice Questions (MCQ's) & Subjective type questions.
2. Maximum marks for each question are indicated on right -hand side of each question.
3. Illustrate your answers with neat sketches wherever necessary.
4. Assume suitable data if necessary.
5. Preferably, write the answers in sequential order.
6. No sheet should be left blank. Any written material after a blank sheet will not be evaluated/checked.

SECTION-A 15

1. Attempt all parts:-

1-a. Identify which of them is not a component of business analytics. (CO1) 1

(a) Descriptive Analytics

(b) Predictive Analytics

(c) Prescriptive Analytics

(d) Retrospective Analytics

1-b. Identify the function VLOOKUP() do in Excel.(CO2) 1

(a) Searches for a value in the leftmost column of a table and returns a value in the same row from a specified column

(b) Searches for a value in the top row of a table and returns a value in the same column from a specified row

(c) Both B and C

(d) None of these

1-c. Identify measure of variance that represents the average squared deviation of each data point from the mean.(CO3) 1

(a) Mean

(b) Median

(c) Mode

(d) Variance

1-d. Define Correlation.(CO4) 1

(a) Strength of the relationship between two variables

(b) Direction of the relationship between two variables

(c) Both A and B

(d) None of these

1-e. Time Series is.(CO5) 1

(a) A collection of random variables ordered by time

(b) A database management system

(c) A type of clustering algorithm

(d) None of these

2. Attempt all parts:-

2.a. Explain business analytics 2

2.b. Describe the primary use of a bar chart in Excel, and how does it differ from a column chart? 2

2.c. Describe mean and also discuss methods to calculate 2

2.d. State what does a positive correlation coefficient indicate 2

2.e. State a common method used for time series forecasting 2

SECTION-B 15

3. Answer any three of the following:-

3-a. Discuss how descriptive, predictive, and prescriptive analytics differ from each other, and what are some real-world applications of each type of analytics in different industries.(CO1) 5

3-b. Describe the main features of a pie chart in MS Excel, including its components and the type of data it is best suited for displaying. Discuss the advantages and limitations of using pie charts in data visualization.(CO2) 5

3.c. Describe the concept of the mean as a measure of location. Explain how it is calculated and discuss its significance in data analysis. Provide examples of scenarios where the mean is a useful measure of central tendency and situations where it may be misleading.(CO3) 5

3.d. Describe the steps involved in calculating the correlation coefficient between two variables. Provide a detailed example to illustrate the calculation process.(CO4) 5

3.e. Define time series analysis and discuss its applications in various fields such as finance economics and environmental science.(CO5) 5

SECTION-C 30

4. Answer any one of the following:-

4-a. A retail chain wants to optimize its inventory management. How can business analytics help them identify the optimal stock levels for each product to minimize holding costs while ensuring product availability? Question: Using business analytics, propose a strategy for the retail chain to optimize its inventory 6

management while balancing holding costs and product availability. (CO1)

4-b. An online Company improve its engine to increase customer Participation and revenue. How can business analytics helps to analyze customer data and personalize product ? Question: Develop a strategy for the company can use to enhance its engine using business analytics to increase customer Participation and revenue.(CO1) 6

5. Answer any <u>one</u> of the following:-

5-a. A sales manager wants to analyze the performance of different sales representatives over the past year. Which Excel chart type would you recommend for visualizing this data, and how would you interpret the insights gained from the chart? Question: Using MS Excel, create a suitable chart type to compare the performance of different sales representatives over the past year. Interpret the insights gained from the chart and provide recommendations for improving sales performance.(CO2) 6

5-b. A financial analyst wants to analyze the performance of a portfolio of stocks over a specific time period. How can MS Excel be used to create a line chart to visualize the historical performance of each stock and identify trends or patterns? Question: Utilizing MS Excel, create a line chart to visualize the historical performance of a portfolio of stocks over a specific time period. Analyze the trends or patterns identified in the chart and provide insights into the overall performance of the portfolio.(CO2) 6

6. Answer any <u>one</u> of the following:-

6-a. A retail store recorded the daily sales of a product for one week. The sales figures (in units) for Monday to Sunday are as follows: 25, 30, 35, 20, 40, 45, and 50. Calculate the mean, median, and mode of the daily sales.(CO3) 6

6-b. A researcher collected data on the ages of participants in a study. The ages of 20 participants are as follows: 25, 28, 30, 35, 40, 42, 45, 50, 55, 58, 60, 65, 70, 75, 80, 85, 90, 95, 100, and 105. Calculate the mean, median, and mode of the ages.(CO3) 6

7. Answer any <u>one</u> of the following:-

7-a. Given the following data points for two variables X and Y: 6
X: [5, 10, 15, 20, 25]
Y: [12, 18, 22, 30, 35]
Calculate the correlation coefficient between X and Y.(CO4)

7-b. Calculate the correlation coefficient between two variables R and S using the following data: R: [8, 12, 14, 20, 25] S: [4, 8, 15, 16, 20].(CO4) 6

8. Answer any <u>one</u> of the following:-

8-a. Discuss how financial institutions use data mining techniques to assess creditworthiness and predict the risk of default for loan applicants based on their financial history and other relevant factors.(CO5) 6

8-b. An airline company wants to minimize aircraft downtime and maintenance costs. How can data mining and predictive analytics be used to identify potential 6

equipment failures and schedule maintenance proactively.(CO5)