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NOIDA INSTITUTE OF ENGINEERING AND TECHNOLOGY, GREATER NOIDA
(An Autonomous Institute Affiliated to AKTU, Lucknow)

MBA IEV

SEM: II - THEORY EXAMINATION (2025 - 2026)

Subject: Introduction to Business Analytics

Time: 3 Hours

Max. Marks: 100

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

20

1. Attempt all parts:-

- | | | |
|-------|---|---|
| (1.1) | The scientific process of transforming data into insight for making better decisions is called:CO1,K1 | 1 |
| | <ul style="list-style-type: none"> (a) Business Intelligence (b) Business Analytics (c) Data Reporting (d) Database Management | |
| (1.2) | Which of the following is an example of descriptive analytics?CO2,K1 | 1 |
| | <ul style="list-style-type: none"> (a) Sales forecast for next quarter (b) Monthly sales dashboard (c) Optimal pricing recommendation (d) Customer churn prediction | |
| (1.3) | A Pivot Table in Excel is used to:CO2,K1 | 1 |
| | <ul style="list-style-type: none"> (a) Create charts (b) Clean data (c) Summarize and analyze large datasets (d) Write formulas | |
| (1.4) | A data visualization technique that shows data values as colors is called a:CO2,K1 | 1 |
| | <ul style="list-style-type: none"> (a) Bar chart (b) Heat map (c) Pie chart (d) Line chart | |

- (1.5) The value that appears most frequently in a data set is called the:CO3,K1 1
- (a) Mean
 - (b) Median
 - (c) Mode
 - (d) Average
- (1.6) The square root of the variance is called the:CO3,K1 1
- (a) Range
 - (b) Mean
 - (c) Standard Deviation
 - (d) Coefficient of Variation
- (1.7) R-squared (R^2) is a measure that tells us: CO4,K1 1
- (a) The slope of the line
 - (b) How well the model fits the data
 - (c) The intercept value
 - (d) The error in prediction
- (1.8) The process of discovering patterns and knowledge from large amounts of data is called: CO2,K1 1
- (a) Data entry
 - (b) Data mining
 - (c) Data storage
 - (d) Data deletion
- (1.9) A time series is a set of data points collected at: CO5,K1 1
- (a) Random time intervals
 - (b) Regular time intervals
 - (c) The same point in time
 - (d) Irregular time intervals
- (1.10) The unpredictable or random movements in a time series are called:CO5,K1 1
- (a) Trend component
 - (b) Seasonal component
 - (c) Cyclical component
 - (d) Irregular component

2. Attempt all parts:-

- (2.1) Mention any two applications of Business Analytics in business. CO1,K1 2
- (2.2) Explain the function of Conditional Formatting?CO2,K2 2
- (2.3) Explain what Standard Deviation measures with an example?CO3,K2 2
- (2.4) State the difference between dependent and independent variables in regression?CO4,K1 2
- (2.5) Briefly explain the concept of seasonality and cyclicity? CO5,K2 2

SECTION-B

30

Answer any one of the following:-

(3.1)	Compare and contrast Descriptive, Predictive, and Prescriptive Analytics with suitable examples.CO1,K3	6
(3.2)	Elaborate on the advantages and key features of the R programming language for data analysis. CO1,K2	6
Answer any one of the following:-		
(3.3)	Explain the process of removing duplicates and handling missing values in Excel.CO2,K2	6
(3.4)	Describe how the VLOOKUP function can be used to find data from another table. CO2,K3	6
Answer any one of the following:-		
(3.5)	Explain the Coefficient of Variation and explain where it is required, CO3,K2	6
(3.6)	Describe how to calculate Variance and Standard Deviation using Excel functions.CO3,K5	6
Answer any one of the following:-		
(3.7)	Analyze the concept of least squares method and why it is used to find the best regression line. CO4,K3	6
(3.8)	Explain how a marketing manager might use clustering to improve customer targeting. CO4,K3	6
Answer any one of the following:-		
(3.9)	Briefly explain the concept of ARIMA models and their purpose in forecasting.CO5,K3	6
(3.10)	Describe the difference between a positive trend and a negative trend with graphs along with its suitable example. CO5,K3	6
<u>SECTION-C</u>		50
4. Answer any <u>one</u> of the following:-		
(4.1)	Analyze the role of Business Analytics as a strategic function versus a support function. How can an organization transition from using analytics for reporting to using it for competitive advantage? CO1,K4	10
(4.2)	Provide an introduction to R, Python, and SPSS tools, explaining their salient features. CO1,K3	10
5. Answer any <u>one</u> of the following:-		
(5.1)	Explain in detail how to clean data in Excel using various techniques and why it is important in the field of Business analytics.CO2,K3	10
(5.2)	Discuss the different types of charts in Excel and explain the appropriate use for each type. CO2,K3	10
6. Answer any <u>one</u> of the following:-		
(6.1)	Analyze why Standard Deviation is considered a more reliable measure of variability than the Range. CO3,K5	10
(6.2)	Elaborate the importance of descriptive analytics in the overall Business Analytics process before moving to predictive modeling.CO3,K4	10
7. Answer any <u>one</u> of the following:-		
(7.1)	A company wants to predict customer churn. Would you use classification or	10

regression? Justify your choice. CO4,K4

- (7.2) Explain the concept of supervised learning with two detailed business examples. CO4,K3 10

8. Answer any one of the following:-

- (8.1) Analyze why a business might mistake a cyclical pattern for a trend and what problems this could cause to the company in coming future. CO5,K4 10
- (8.2) Synthesize the concepts of trend, seasonality, and auto-correlation into a complete process for building a basic forecasting model for monthly sales data. CO5, K5 10

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