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

MBA (Integrated)

SEM: V - THEORY EXAMINATION (2025 - 2026)

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. The first step in the business analytics process is?(CO1,K1)

1

- (a) Data collection
- (b) Hypothesis setting
- (c) Problem identification
- (d) Data analysis

1-b. In Excel, the chart wizard can:(CO2,K1)

1

- (a) Only place a chart on a new chart sheet
- (b) Only place a chart on a new blank worksheet
- (c) Place a chart on a new chart sheet or on any sheet in the workbook
- (d) Only be used to create embedded charts

1-c. The median of data 14, 12, 10, 17, x, 20, 22 (arranged) is 16. What is x?(CO3,K1)

1

- (a) 15
- (b) 16
- (c) 17
- (d) 18

1-d. One of the key assumption of simple linear regression is?(CO4,K1)

1

- (a) The relationship between variables is non-linear
- (b) The residuals are dependent
- (c) The variance of errors is constant
- (d) The independent variable is categorical

1-e. The term "stationary" which is used in time series analysis means?(CO5,K1)

1

- (a) The data has a trend component
- (b) The statistical properties of the data do not change over time
- (c) The data has seasonal components
- (d) The data contains random noise

2. Attempt all parts:-

- 2.a. Define business intelligence.(CO1,K2) 2
- 2.b. State the reason to use VLOOKUP function in MS Excel. (CO2,K2) 2
- 2.c. Explain why the standard deviation is preferred over variance in representing dispersion.(CO3,K2) 2
- 2.d. Discuss the importance of identifying correlation.(CO4,K2) 2
- 2.e. Highlight the ways of identifying seasonality in time series forecasting. (CO5,K2) 2

SECTION-B

15

3. Answer any three of the following:-

- 3-a. Elaborate on the types of data based on the scale of measurement with the help of relevant examples. (CO1,K3) 5
- 3-b. Explain how to use the INDEX and MATCH functions together in Excel. Provide a scenario where this combination is useful.(CO2,K4) 5
- 3.c. The sum of 15 observations is 300 and the sum of their squares is 6500. Find the mean, variance, and coefficient of variation.(CO3,K3) 5
- 3.d. Describe the role of AI in the future of work and its impact on various industries. (CO4,K3) 5
- 3.e. Discuss the importance of residual analysis in validating time series forecasting models. Discuss some common residual diagnostic tests. (CO5,K3) 5

SECTION-C

30

4. Answer any one of the following:-

- 4-a. "Business analytics process is similar to the organization's decision making process". Comment on the given statement. (CO1,K4) 6
- 4-b. Elaborate the scope of business analytics with reference to product delivery companies such as Amazon etc. Support your answer with examples. (CO1,K3) 6

5. Answer any one of the following:-

- 5-a. Elaborate the steps to create heatmap in MS Excel. (CO2,K4) 6
- 5-b. Explain how to create a basic pivot table and summarize data from a sales report. Include steps to add fields, filter data, and format the pivot table.(CO2,K3) 6

6. Answer any one of the following:-

- 6-a. For a factory, the average daily wage is Rs. 500 with a standard deviation of Rs. 75. For another factory, the average is Rs. 600 with a standard deviation of Rs. 96. Compare the consistency of wages using the coefficient of variation.(CO3,K4) 6
- 6-b. **The following table shows the distribution of daily wages (in Rs.) of 100 workers in a factory.** 6

Daily Wages (Rs.)	10–20	20–30	30–40	40–50	50–60	60–70
Number of Workers	10	15	20	f	12	8

(a) Find the missing frequency f.

(b) Calculate the **mode** of the distribution. (CO3,K3)

7. Answer any one of the following:-

7-a. Find the regression line (y on x) for the data: x: 1, 2, 3, 4 y: 2, 3, 5, 4. Discuss the inferences drawn from this regression line. (CO4,K4) 6

7-b. Define Artificial Intelligence and discuss its primary goals and challenges.(CO4,K3) 6

8. Answer any one of the following:-

8-a. Discuss how time series forecasting can improve inventory management.(CO5,K3) 6

8-b. Discuss the Autoregressive (AR) model in time series forecasting. How does it predict future values?(CO5,K3) 6

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