NOIDA INSTITUTE OF ENGINEERING AND TECHNOLOGY, GREATER NOIDA
(An Autonomous Institute Affiliated to AKTU, Lucknow)
B.Tech
SEM: V - THEORY EXAMINATION (2024 - 2025)
Subject: Business Intelligence and data Visualization

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-a.   Which of the following does not form part of BI Stack in SQL Server? (CO1, K1)   1

    (a)   SSRS

    (b)   SSIS

    (c)   SSAS

    (d)   CIS

1-b.   Data warehouse architecture is based on _____.(CO1,K2)   1

    (a)   RDBMS

    (b)   Sybase

    (c)   SQL Server

    (d)   data warehouse

1-c.   Dashboard, Scorecard & Reports are the part of_____(CO2,K1)   1

    (a)   DBMS

    (b)   Data Mart

    (c)   Relational Algebra

    (d)   Data Visualisation

1-d.   NumPy is_____(CO2, K1)   1

    (a)   BI tool

    (b)   Map

    (c)   Charts

(d)   Python Library

1-e.   Which of these is not a datatype in Tableau? (CO 3, K1)   1

(a)   Integer

(b)   Character

(c)   Float

(d)   String

1-f.   Tableau was introduced in the year of_____.(CO3 ,K1)   1

(a)   2000

(b)   2002

(c)   2003

(d)   2004

1-g.   Data can be visualized using_____(CO4 ,K2)   1

(a)   Graphs

(b)   Charts

(c)   Maps

(d)   All of the above

1-h.   The benefits of data visualization is   (CO4 ,K2)   1

(a)   Better analysis

(b)   Identifying patterns

(c)   Exploring business insights

(d)   All of the above

1-i.   Contains reference data such as descriptive attributes_____.   1
(CO5,K3)

(a)   Fact table

(b)   Query table

(c)   Dimension table

(d)   Power BI table

1-j.   A function that can only work on numeric fields is_____.(CO5 ,K3)   1

(a)   ISNUMBER

(b)   AVERAGE

(c)   AND

(d)   CONCATENATE

2. Attempt all parts:-

2.a.   Explain structured, unstructured and semi-structured. (CO1, K2)   2

2.b.   Define risk mitigation. (CO2, K1)   2

2.c.   Differentiate between SUM and AVG Tableau calculations. (CO3, K2)   2

2.d.   Name any 4 Tableau file types. (CO4, K1)   2

| 2.e. | Define Power BI and its relationship with excel. (CO5, K2) | 2 |

SECTION-B
30

3. Answer any <u>five</u> of the following:-

3-a.	How does BI fit into the existing infrastructure of an organization? (CO1 , K2)	6
3-b.	Explain the role of advanced analytics in enhancing BI decision-making. (CO1,K2)	6
3-c.	Define KPI and explain how it can be used in scoreboard creation. (CO2, K3)	6
3-d.	How would you define a good dashboard in the context of business intelligence and data analytics? (CO2,K2)	6
3-e.	State some ways to improve the performance of Tableau.(CO3, K1)	6
3-f.	Describe the importance of the Formatting of data with colors.(CO4,K3)	6
3-g.	Explain the Clean and transform data to ensure data quality in Power BI. (CO5, K2)	6

SECTION-C
50

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

| 4-a. | Describe the architecture of a BI system, highlighting the key components and their functions. (CO1, K1) | 10 |
| 4-b. | Discuss the process of data preparation for BI, including the role of ETL.Justify with an example. (CO1,K2) | 10 |

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

| 5-a. | Discuss the role and benefits of Dashboards and Scorecards in BI. How are these tools developed, and how do they support decision-making within organizations? (CO2,K3) | 10 |
| 5-b. | Explain the drill-up and drill-down capabilities in BI reporting, and how do they enable users to explore data at different levels of granularity? (CO2, K3) | 10 |

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

| 6-a. | How to Build a Tableau Treemap? Write the step by step procedure? (CO3,K2) | 10 |
| 6-b. | Given a dataset with sales figures across different months, create a line chart to show the trend of sales over time in Tableau. How would you set up the chart using the "Show Me" panel? How to create the Custom calculations in Tableau? (CO3 ,K4) | 10 |

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

| 7-a. | Explain how Tableau's Data Interpreter can be used to clean up data. What are the common types of data issues it helps resolve, and how does it improve data preparation?(CO4,K3) | 10 |
| 7-b. | How can interactivity be added to Tableau dashboards? Discuss the importance of customizing tooltips, using filters, and adding interactive elements for enhanced user experience. (CO4,K2) | 10 |

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

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8-a.	Differentiate between various data sources that Power BI can connect to. How does Power BI handle different types of data sources, and what are some examples? (CO5,K3)	10
8-b.	Describe the process of building a Power BI report. What are the key steps involved in designing visualizations and arranging them for user interaction?(CO5,K3)	10