NOIDA INSTITUTE OF ENGINEERING AND TECHNOLOGY, GREATER NOIDA
(An Autonomous Institute Affiliated to AKTU, Lucknow)
B.Tech
SEM: VI - 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.   Data Mart is (CO1,K2)   1

(a)   A subset of a data warehouse that is focused on a specific business function or department

(b)   A tool for analyzing data

(c)   A data visualization tool

(d)   A technique for managing data quality

1-b.   The main purpose of a BI architecture is (CO1,K2)   1

(a)   To store and manage data

(b)   To visualize data

(c)   To generate reports

(d)   To support decision-making

1-c.   Choose which is not a commonly used data visualization type in business   1
            intelligence tools (CO2,K1)

(a)   A subset of a data warehouse that is focused on a specific business function or department

(b)   A tool for analyzing data

(c)   A data visualization tool

(d)   A technique for managing data quality

1-d.   Risk Mitigation is (CO2,K2)   1

    (a)   OLAP engine

    (b)   Data warehouse

    (c)   ETL tool

    (d)   Data mart

1-e.   The file formats that can be connected to Tableau (CO3,K1)   1

    (a)   Excel, CSV, Text file, Access database

    (b)   PowerPoint, Word, PDF, JPG

    (c)   XML, JSON, HTML, SQL Server

    (d)   none

1-f.   The primary function of the SUM function in Tableau is (CO3,K2)   1

    (a)   It calculates the total of all values in a selected field

    (b)   It calculates the average of all values in a selected field

    (c)   It calculates the minimum value in a selected field

    (d)   It calculates the maximum value in a selected field

1-g.   Choose which is not a step in the data cleaning process (CO4,K2)   1

    (a)   Structuring the data

    (b)   Sorting the data

    (c)   Filtering the data

    (d)   Visualizing the data

1-h.   The Data Interpreter in Tableau is used for: (CO4,K1)   1

    (a)   Creating visualizations

    (b)   Cleaning up data

    (c)   Connecting to data sources

    (d)   None of the above

1-i.   A customer may purchase 1 or many products. So the relationship between the customer table and the products table will be_____.(CO5,K2)   1

    (a)   One to Many

    (b)   Many to Many

    (c)   Many to One

    (d)   One to One

1-j.   A function that can only work on numeric fields is_____.(CO5,K2)   1

    (a)   ISNUMBER

    (b)   AVERAGE

    (c)   AND

    (d)   CONCATENATE

2. Attempt all parts:-

2.a.   Define real time Business Intelligence.(CO1,K1)   2

2.b.   List some common components of a dashboard.(CO2,K1)   2

2.c.	State some ways to improve the performance of Tableau. (CO3,K2)	2
2.d.	Define the procedure a good data visualization.(CO4,K1)	2
2.e.	Mention the important features of Power BI.(CO5,K1)	2

SECTION-B   30

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

3-a.	Explain how mobile BI contribute to the overall effectiveness of a BI solution. (CO1,K1)	6
3-b.	Discuss the characteristics of Data Warehouse.(CO1,K2)	6
3-c.	Describe the different stages of the business intelligence projects.(CO2,K2)	6
3-d.	Differentiate between scoreboard and Dashboard with an example.(CO2,k2)	6
3-e.	Discuss the Show Me panel in Tableau and how can it be used to create visualizations.(CO3,K3)	6
3-f.	Describe how storytelling can be used when creating dashboards to enhance user engagement and decision-making. What key elements should be included to ensure an effective data story?(CO4,K3)	6
3-g.	Define Power BI Cloud. Explain in detail with example.(CO5,K1)	6

SECTION-C   50

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

4-a.	Differentiate between OLAP and OLTP. Explore the parameters that supports the performance management parameters for the senior executives.(CO1,K2)	10
4-b.	Explain the main components of a Business Intelligence (BI) system and describe how they interact within the BI architecture to support effective decision-making in an organization.(CO1,K2)	10

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

5-a.	Discuss the potential risks associated with business intelligence, and how can they be mitigated.(CO2,K1)	10
5-b.	Explain the concept of drill-up and drill-down in data visualization and analysis. How do these activities enhance data exploration? Provide examples of when and why you would use drill-up and drill-down in a business intelligence report.(CO2,K2)	10

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

6-a.	Describe the Purpose of Creating the custom calculations in the Tableau and differentiate between SUM and AVG Function.(CO3,K2)	10
6-b.	Discuss some advanced features of Tableau that can help you create more complex visualizations and analyze data more deeply.(CO3,K2)	10

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

7-a.	Write the step by step procedure to create data storytelling in Tableau .(CO4,K2)	10
7-b.	Define the different Tableau file types and publishing of the Tableau Online. (CO4,K1)	10

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

8-a. Describe Slicer in Power BI and connection procedure of the data source in it.(CO5,K2)   10

8-b. Describe about the three views on the Power BI desktop. Explain with suitable diagram.(CO5,K2)   10