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

B.Tech

SEM: VI - THEORY EXAMINATION (2025 - 2026)

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:-

(1.1) BI system scalability is ensured by (CO1, K2)

1

- (a) Static architecture
- (b) Hard-coded queries
- (c) Modular component design
- (d) Rigid schemas

(1.2) The component of BI architecture that is responsible for storing historical data (CO1, K2)

1

- (a) OLAP engine
- (b) Data warehouse
- (c) ETL tool
- (d) Data mart

(1.3) Dashboards in BI emphasize (CO2,K2)

1

- (a) Programmatic recursion
- (b) Procedural file management
- (c) Real-time metric visualization
- (d) Assembly language execution

(1.4) Data Visualisation is the component of (CO2,K2)

1

- (a) Key Performance Indicators
- (b) Key Performance Identify
- (c) Key Processes Identifier
- (d) OBIEE

- (1.5) Line chart selection in Tableau suits (CO3,K2) 1
- (a) Non-numeric strings
 - (b) Temporal trend analysis
 - (c) Static web pages
 - (d) DNS lookups
- (1.6) Aggregate functions in Tableau affect (CO3,K2) 1
- (a) Visualization aesthetics
 - (b) Data granularity
 - (c) Debug log frequency
 - (d) Authentication timeout
- (1.7) The process of uploading a Tableau workbook to Tableau Online is called _____ 1
(CO4, K2)
- (a) Publishing
 - (b) Exporting
 - (c) Sharing
 - (d) Printing
- (1.8) The purpose of structuring data in Tableau is (CO4, K2) 1
- (a) To create more visually appealing visualizations
 - (b) To improve performance
 - (c) To make the data easier to work with
 - (d) All of the above
- (1.9) The key feature of Power BI is (CO5, K1) 1
- (a) Ability to create and share dashboards
 - (b) Ability to create spreadsheets
 - (c) Ability to edit images
 - (d) Ability to create logos
- (1.10) Creates the connection between Power BI cloud-based data and the data source located on-premises_____ (CO5, K1) 1
- (a) Report view
 - (b) Query editor
 - (c) Power BI service
 - (d) Gateway

2. Attempt all parts:-

- (2.1) Differentiate OLTP and OLAP in a business case.(CO1, K2) 2
- (2.2) List some potential costs associated with implementing a business intelligence solution. (CO2,K2) 2
- (2.3) Explain the limitation of context filters in Tableau.(CO3, K2) 2
- (2.4) Describe the difference between sorting and filtering in Tableau.(CO4, K2) 2
- (2.5) List the sequence followed in Power BI to connect, clean, and load a dataset into the data model. (CO5, K1) 2

SECTION-B

30

Answer any one of the following:-

- (3.1) Outline the functional areas of Business Intelligence tools and discuss their contribution to data-driven decision making in organizations. (CO1, K2) 6
- (3.2) Explain the role of Data Warehousing and OLAP in enabling advanced analytics for Business Intelligence. (CO1, K2) 6

Answer any one of the following:-

- (3.3) Describe the significance of metadata models and their impact on data governance and consistency.(CO2,K2) 6
- (3.4) Discuss the essential components of reporting in business intelligence.(CO2, K2) 6

Answer any one of the following:-

- (3.5) Discuss 'discrete' and 'continuous' fields in Tableau.(CO3, K2) 6
- (3.6) Distinguish between Treemaps and Heat Maps with an example.(CO3, K3) 6

Answer any one of the following:-

- (3.7) Evaluate the impact of interactivity on user engagement in Tableau dashboards with suitable examples.(CO4, K4) 6
- (3.8) Examine how Tableau helps in handling large datasets and maintaining performance in dashboards.(CO4, K4) 6

Answer any one of the following:-

- (3.9) Describe the role of KPIs in the context of Power BI. (CO5, K2) 6
- (3.10) Explain the bookmark function in Power BI and its applications. (CO5, K2) 6

SECTION-C

50

4. Answer any one of the following:-

- (4.1) Discuss the integration of data warehouses and OLAP systems in supporting advanced analytics and performance management. (CO1, K2) 10
- (4.2) Explain the advantages of making decision using business intelligence over making decision without business intelligence (CO1, K2) 10

5. Answer any one of the following:-

- (5.1) Draw the flowgraph of designing BI Project.(CO2,K2) 10
- (5.2) Describe the role of BI developer in Business Intelligence.(CO2,K2) 10

6. Answer any one of the following:-

- (6.1) Describe about the axis range and visualization Charts with relevant example.(CO3, K2) 10
- (6.2) Distinguish between published data and embedded data sources in Tableau.(CO3, K3) 10

7. Answer any one of the following:-

- (7.1) Analyze the importance of designing dashboards for different devices (desktop, mobile) and its impact on usability.(CO4, K4) 10
- (7.2) Analyze the role of dashboards and stories in Tableau for effective decision-making. Compare their features.(CO4, K4) 10

8. Answer any one of the following:-

- (8.1) Describe how Power Automate fits into the Power BI ecosystem and its key 10

features. (CO5, K2)

- (8.2) List and explain five different data visualization tools. (CO5, K2)

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