Reg. No.															

Question Paper Code	14331

B.E. / B.Tech. - DEGREE EXAMINATIONS, APRIL / MAY 2026

Eighth Semester

Computer Science and Engineering (AIML)

20AIEL720 - BUSINESS INTELLIGENCE

Regulations - 2020

Duration: 3 Hours | Max. Marks: 100

PART - A (i) (MCQ)
(16 × 1 = 16 Marks)
Answer ALL Questions

		Marks	K – Level	CO
1.	An algorithm commonly used for anomaly detection is _____. a) K-means clustering b) Decision Trees c) Isolation Forest d) Naive Bayes	1	K1	CO1
2.	Outline the purpose of data visualization in Business Intelligence. a) Reduced data security risks b) Faster data integration processes c) Increased data accuracy and consistency d) Empowerment of business users for data analysis	1	K2	CO1
3.	Which BI technique supports "what-if" analysis? a) BPM ensures compliance with data privacy regulations b) BPM involves data visualization and report generation c) BPM aligns business activities with strategic objectives d) BPM automates data collection and integration processes	1	K1	CO1
4.	Show the concept of time series analysis. a) Learning with deep data sets b) A set of algorithms used in machine learning c) An advanced form of machine learning involving neural networks with multiple layers d) A technique for detailed data analysis	1	K2	CO2
5.	What is a confusion matrix? a) A matrix that confuses the model b) A complex data structure c) A table used to describe the performance of a classification model d) A tool for data transformation	1	K1	CO2
6.	Outline the role of BI tools in converting data into meaningful insights for decision-making. a) Data b) Software c) Networks d) Security	1	K2	CO2
7.	Which chart plots data points using two numerical axes? a) Pie chart b) Bar chart c) Scatter plot d) Area chart	1	K1	CO3
8.	Select an organization system that helps managers to evaluate different business alternatives using data analysis. a) Decision Support System (DSS) b) Transaction Process System c) Executive Support System d) None of the mentioned above	1	K3	CO3

9.	Make use of the daily website traffic data for six months and select data visualization tools or charts would you apply to detect patterns and trends? a) By hiding unnecessary data b) By converting data into tables c) By converting data into tables d) By encrypting data	*1*	*K3*	*CO3*
10.	A sales manager notices that overall quarterly sales have decreased. Apply drill-down analysis to identify the specific region, product, or time period responsible for the decline? a) Delete data b) Summarize data c) View detailed data d) Encrypt data	*1*	*K3*	*CO4*
11.	The customer perspective belongs to a) OLAP b) Balanced Scorecard c) ETL d) Data mart	*1*	*K1*	*CO4*
12.	A healthcare organization gathers patient records, medical images, and clinical notes in different formats. Identify the types of data a data scientist must manage and explain how they can apply these data for analysis and decision-making. a) Organized b) Index c) Structured and unorganized d) Unstructured and organized	*1*	*K3*	*CO4*
13.	A company wants to provide summarized key performance indicators (KPIs), financial reports, and real-time business metrics to support strategic decision-making. Identify the scenario that primarily uses executive dashboard? a) Middle management b) IT professionals c) Top-level executives d) Sales teams	*1*	*K3*	*CO5*
14.	Infer a Balanced Scorecard that measures performance from a) ne perspective b) Two perspectives c) Four perspectives d) Six perspectives	*1*	*K2*	*CO5*
15.	Show the Augmented analytics that combines BI with a) Hardware b) Artificial Intelligence c) Networking d) Accounting	*1*	*K2*	*CO6*
16.	A hospital aims to forecast patient admission rates for the next six months using previous records. Identify which analytics technique should be implemented? a) Predictive b) Descriptive c) Diagnostic d) All of the mentioned	*1*	*K3*	*CO6*

PART - A (ii) (Short Answer Questions)
(6 × 3 = 18 Marks)

Answer ALL Questions

17.	Illustrate the over fitting occurs in a regression model using a graphical representation.	*3*	*K3*	*CO1*
18.	Apply Simple Linear Regression to model the relationship between two variables in a real-world example.	*3*	*K3*	*CO2*
19.	Compare and analyze the limitations of commercial optimization tools when applied to small-scale versus large-scale business environments. Discuss their potential impact on decision-making.	*3*	*K4*	*CO3*
20.	A company wants to understand its monthly sales performance. Illustrate how data visualization tools can be applied to improve the interpretation of the company's performance data.	*3*	*K3*	*CO4*
21.	Inspect a BI search interface that contributes to faster and more accurate business analysis.	*3*	*K4*	*CO5*
22.	Examine rich interactive reports in BI systems that support strategic and operational decision-making in an organization. Analyze their key components and impact.	*3*	*K4*	*CO6*

PART - B (Descriptive Answer Questions)
(6 × 11 = 66 Marks)
Answer ALL Questions

23.	a)	Illustrate the procedure to create a Histogram in Excel using a dataset and interpret the resulting output with a suitable example.	*11*	*K3*	*CO1*
		OR			
	b)	Make use of the CRM and BI concepts in a marketing scenario and show how CRM systems utilize BI for decision-making.	*11*	*K3*	*CO1*
24.	a)	Identify the stages of the data science life cycle in a real-world problem and apply each phase appropriately.	*11*	*K3*	*CO2*
		OR			
	b)	Implement BI tools and concepts in a real-world business scenario and demonstrate how they support modern decision-making.	*11*	*K3*	*CO2*
25.	a) (i)	A retail company is integrating customer data from multiple branches into a centralized database. Demonstrate how data profiling can be applied in this scenario to ensure data quality and consistency. Explain the steps involved with a suitable example.	*6*	*K3*	*CO3*
	(ii)	A company plans to migrate its operational data into a data warehouse for reporting purposes. Illustrate how the ETL process can be applied in this scenario and explain each stage with a neat structured diagram.	*5*	*K3*	*CO3*
		OR			
	b)	An organization collects different types of information for strategic, tactical, and operational decision-making. Apply the characteristics of information to these three decision-making levels and explain how each type of information is used at each level with suitable examples.	*11*	*K3*	*CO3*
26.	a)	Develop prototypes of managerial, operational, and strategic dashboards using appropriate tools and apply relevant data elements to highlight their purposes.	*11*	*K3*	*CO4*
		OR			
	b) (i)	Utilize dashboard actions in a BI tool and Illustrate their use in practical scenarios.	*6*	*K3*	*CO4*
	(ii)	Organize the steps required to download a report in PDF format from a BI tool.	*5*	*K3*	*CO4*
27.	a)	Analyze the selection of KPIs for top-level decision-making by break down the components of an enterprise dashboard design.	*11*	*K4*	*CO5*
		OR			
	b)	Compare advanced visualization tools and analyze their advantages in different business contexts.	*11*	*K4*	*CO5*
28.	a)	Break down the components of a rich report and analyze its insights using a suitable example.	*11*	*K4*	*CO6*
		OR			
	b)	Compare the application of Machine Learning techniques in BI for healthcare and retail domains and analyze their effectiveness in predictive analytics.	*11*	*K4*	*CO6*