23AIPC306

MANGALORE INSTITUTE OF TECHNOLOGY & ENGINEERING

(A Unit of Rajalaxmi Education Trust®, Mangalore)
Autonomous Institute affiliated to VTU, Belagavi, Approved by AICTE, New Delhi
Accredited by NAAC with A+ Grade & ISO 9001:2015 Certified Institution

Model Question Paper

Sixth Semester BE Degree Examination

BUSINESS INTELLIGENCE

Time: 3 Hours(180 Minutes) **Max. Marks: 100**

Note: 1. Answer any FIVE full questions, choosing ONE full question from each module.
2. M: Marks, L: RBT (Revised Bloom's Taxonomy) level, C: Course outcomes.

<table>
<tr><th colspan="3">Module -1</th><th>M</th><th>L</th><th>C</th></tr>
<tr><td rowspan="3">Q1</td><td>a.</td><td>Explain the components of BI architecture that transform raw data into insights for decision-making, with a neat diagram.</td><td>9</td><td>L2</td><td>CO1</td></tr>
<tr><td>b.</td><td>Discuss with a diagram the BI pyramid showing data transformed into intelligence to enhance marketing and customer acquisition for The Souled Store</td><td>6</td><td>L2</td><td>CO1</td></tr>
<tr><td>c.</td><td>Discuss the challenges in BI implementation.</td><td>5</td><td>L2</td><td>CO1</td></tr>
<tr><td colspan="6">OR</td></tr>
<tr><td rowspan="3">Q2</td><td>a.</td><td>Explain the Conceptual Differences between Data, Information, and Knowledge</td><td>9</td><td>L2</td><td>CO1</td></tr>
<tr><td>b.</td><td>Examine the aspects of data timeliness and risks of stale data with an appropriate examples.</td><td>6</td><td>L2</td><td>CO1</td></tr>
<tr><td>c.</td><td>Discuss the value of converting information into knowledge and the factors in determining the ROI strategy with respect to the CRM Data Warehouse project</td><td>5</td><td>L2</td><td>CO1</td></tr>
<tr><td colspan="6">Module- 2</td></tr>
<tr><td rowspan="3">Q3</td><td>a.</td><td>Consider the given dataset in Table1, apply the following OLAP operations: Slice, Dice, Rollup, Drill-down.
<table>
<tr><th>Patient_ID</th><th>Age</th><th>Gender</th><th>Blood_Pressure</th><th>Cholesterol</th><th>Heart_Disease</th></tr>
<tr><td>P001</td><td>45</td><td>Male</td><td>High</td><td>High</td><td>Yes</td></tr>
<tr><td>P002</td><td>34</td><td>Female</td><td>Normal</td><td>Normal</td><td>No</td></tr>
<tr><td>P003</td><td>50</td><td>Male</td><td>High</td><td>Normal</td><td>Yes</td></tr>
<tr><td>P004</td><td>29</td><td>Female</td><td>Low</td><td>Normal</td><td>No</td></tr>
<tr><td>P005</td><td>60</td><td>Male</td><td>High</td><td>High</td><td>Yes</td></tr>
</table></td><td>8</td><td>L3</td><td>CO3</td></tr>
<tr><td>b.</td><td>Distinguish between various types of OLAP model.</td><td>7</td><td>L2</td><td>CO2</td></tr>
<tr><td>c.</td><td>Illustrate the business reporting cycle by applying it to a real-world business scenario. Support your answer with a neat diagram and explain how each stage contributes to effective decision-making.</td><td>5</td><td>L3</td><td>CO3</td></tr>
<tr><td colspan="6">OR</td></tr>
<tr><td rowspan="3">Q4</td><td>a.</td><td>Illustrate the procedure of designing Star Schema and Snowflake Schema for a banking system with a suitable diagram.</td><td>8</td><td>L3</td><td>CO3</td></tr>
<tr><td>b.</td><td>Explain the stages of the ETL process in data warehousing.</td><td>7</td><td>L2</td><td>CO2</td></tr>
<tr><td>c.</td><td>Apply Balanced Scorecard (BSC) and Six Sigma by using both approaches in a business scenario. Evaluate their effectiveness in monitoring and improving organizational performance.</td><td>5</td><td>L3</td><td>CO3</td></tr>
<tr><td colspan="6">Module - 3</td></tr>
<tr><td rowspan="2">Q5</td><td>a.</td><td>Examine the CRISP-DM process and discuss the importance of early-stage activities in determining the overall outcome of a data mining project.</td><td>8</td><td>L3</td><td>CO3</td></tr>
<tr><td>b.</td><td>Compare the key features of SOM and Hopfield network architectures.</td><td>5</td><td>L2</td><td>CO2</td></tr>
</table>

	c.	Describe the six proficiency levels of a web analytics maturity model	7	L2	CO2
OR					
Q6	a.	Illustrate how input signals are processed through different layers in an ANN to generate output.	8	L3	CO3
	b.	Explain how data transformation and model assessment are performed in the SEMMA framework.	5	L2	CO2
	c.	Describe the three stages involved in text mining: corpus creation, term–document matrix, and knowledge extraction.	7	L2	CO2
Module - 4					
Q7	a.	Apply the concept of decision and uncontrollable variables to explain how outcomes are generated in a decision support model.	7	L3	CO4
	b.	Illustrate the differences between sensitivity analysis and What-If analysis with suitable examples.	8	L3	CO4
	c.	Describe the role of decision tables and decision trees in representing single-goal decision scenarios	5	L2	CO2
OR					
Q8	a.	Show how the choice of search method (blind vs heuristic) affects computational performance in large-scale problems.	7	L3	CO4
	b.	Illustrate how genetic algorithms are applied to solve the Vector game problem step by step.	8	L3	CO4
	c.	Explain the characteristics, input factors, and benefits of agent-based simulation models in supply chain management	5	L2	CO2
Module - 5					
Q9	a.	Explain the concept of Expert Systems and describe their structure with suitable components.	8	L2	CO2
	b.	Apply the concept of a Recommendation Engine to an e-commerce application and explain how it improves business decision-making.	8	L3	CO4
	c.	Explain the concept of Knowledge Management and its importance in organizations.	4	L2	CO2
OR					
Q10	a.	Explain the concept of Stream Analytics and its role in modern Business Intelligence applications.	8	L2	CO2
	b.	Apply Predictive or Prescriptive Analytics techniques to a business scenario (e.g., sales forecasting or customer churn prediction).	8	L3	CO4
	c.	Explain the importance of ethics, privacy, and legality issues in Business Intelligence.	4	L2	CO2

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