| Reg. No. | | | | | | | | | | | | | | | |
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| Question Paper Code | 13857 |
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**B.E. / B.Tech. - DEGREE EXAMINATIONS, NOV / DEC 2025**

Seventh Semester

**Artificial Intelligence and Data Science**

**20AIEL720 - BUSINESS INTELLIGENCE**

Regulations - 2020

Duration: 3 Hours Max. Marks: 100

**PART - A (MCQ) (10 × 1 = 10 Marks)**

Answer ALL Questions

| | | *Marks* | *K – Level* | *CO* |
|---|---|---|---|---|
| 1. | An algorithm commonly used for anomaly detection is _____.<br>(a) K-means clustering (b) Decision Trees (c) Isolation Forest (d) Naive Bayes | *1* | *K1* | *CO1* |
| 2. | _____ is the characteristic feature of Python that makes it a dominant language in data science.<br>(a) Closed-source nature (b) Limited libraries (c) Syntax complexity (d) Flexibility | *1* | *K1* | *CO1* |
| 3. | BI tools are used to transform _____ into actionable insights.<br>(a) Data (b) Software (c) Networks (d) Security | *1* | *K1* | *CO2* |
| 4. | EIS stands for _____.<br>(a) Enterprise Information System (b) Enterprise Info System<br>(c) Enterprise Innovate System (d) All of the mentioned | *1* | *K1* | *CO2* |
| 5. | Optimization in decision modelling using business intelligence refers to the process of ___.<br>(a) Minimizing Costs (b) Maximizing profits<br>(c) Increasing Efficiency (d) Finding the Best Solution | *1* | *K1* | *CO3* |
| 6. | A _____is a computer application used to support determinations, decisions, and courses of action in an organization or a business.<br>(a) Decision Support System (DSS) (b) Transaction Process System<br>(c) Executive Support System (d) None of the mentioned above | *1* | *K1* | *CO3* |
| 7. | Data scientists are decision makers that are in charge of evaluating and manipulating massive amounts of _____ and _____ data.<br>(a) organized (b) index<br>(c) structured and unorganized (d) unstructured and organized | *1* | *K1* | *CO4* |
| 8. | Stacked bar charts and bubble charts are considered:<br>(a) Basic charts (b) Composite charts (c) Predictive models (d) Tabular methods | *1* | *K1* | *CO4* |
| 9. | An executive dashboard is primarily used by whom?<br>(a) Middle management (b) IT professionals (c) Top-level executives (d) Sales teams | *1* | *K1* | *CO5* |
| 10. | _____analytics is the area of data mining concerned with forecasting probabilities and trends.<br>(a) Predictive (b) Descriptive (c) Diagnostic (d) All of the mentioned | *1* | *K1* | *CO6* |

**PART - B (12 × 2 = 24 Marks)**

Answer ALL Questions

| | | | | |
|---|---|---|---|---|
| 11. | State the purpose of segmentation in data science, and how it is typically implemented. | *2* | *K1* | *CO1* |
| 12. | Show a chart that demonstrates over fitting. | *2* | *K2* | *CO1* |
| 13. | What does ETL stand for, and list the main functions in BI? | *2* | *K1* | *CO2* |
| 14. | How is Business Intelligence applied in financial analysis? Provide an example. | *2* | *K1* | *CO2* |
| 15. | Why are ethical considerations critical in Business Intelligence? | *2* | *K1* | *CO3* |
| 16. | Identify any three limitations of commercial optimization tools. | *2* | *K3* | *CO3* |
| 17. | Demonstrate how data visualization tools can improve the interpretation of a company's sales report. | *2* | *K2* | *CO4* |

| | | | | | |
|---|---|---|---|---|---|
| 18. | Differentiate between the advantages and disadvantages of Google Data Studio. | *2* | *K2* | *CO4* |
| 19. | Compare Analytical Dashboard with Tactical Dashboard. | *2* | *K2* | *CO5* |
| 20. | List any two common data analysis techniques. | *2* | *K1* | *CO5* |
| 21. | Name any two machine learning algorithms commonly used in BI for predictive analysis. | *2* | *K1* | *CO6* |
| 22. | Interpret the significance of rich reports in BI and how they contribute to decision-making. | *2* | *K2* | *CO6* |

**PART - C (6 × 11 = 66 Marks)**

Answer ALL Questions

| | | | | | | |
|---|---|---|---|---|---|---|
| 23. | a) | Discuss in detail about the recommendation system and its types. How it differs from classification. | *11* | *K2* | *CO1* |
| | | **OR** | | | |
| | b) | Discuss about the procedure to add a Histogram in Excel. Explain it with suitable example. | *11* | *K2* | *CO1* |
| 24. | a) | Compare and contrast statistical analysis and sales analysis as used in Business Intelligence applications. Support your answer with examples. | *11* | *K2* | *CO2* |
| | | **OR** | | | |
| | b) | Summarize the concept of Business Intelligence and explain how BI has evolved in today's business perspective. | *11* | *K2* | *CO2* |
| 25. | a) | Explain the characteristics of the information in terms of the scope of decision. | *11* | *K2* | *CO3* |
| | | **OR** | | | |
| | b) | Describe the phases in the development of a decision support system. | *11* | *K2* | *CO3* |
| 26. | a) | Implement a prototype for a managerial, operational and strategic dashboard, highlighting their specific data and purpose. | *11* | *K3* | *CO4* |
| | | **OR** | | | |
| | b) | Identify the effective use of five different basic or composite charts to visualize a provided sales dataset. | *11* | *K3* | *CO4* |
| 27. | a) | Develop a comprehensive design plan for an enterprise dashboard, including the appropriate KPIs for a top-level decision. | *11* | *K3* | *CO5* |
| | | **OR** | | | |
| | b) | Construct a Healthcare analytical dashboard for patients. Discuss how it differs from a KPI analytical dashboard for the FMCG industry. | *11* | *K3* | *CO5* |
| 28. | a) | Identify how Machine Learning techniques can be used in Business Intelligence for predictive analytics in healthcare and retail domains. | *11* | *K3* | *CO6* |
| | | **OR** | | | |
| | b) | Using a case scenario, design a BI framework that integrates real-time analytics with ML-based decision support. | *11* | *K3* | *CO6* |