

END TERM EXAMINATION

SEVENTH SEMESTER [B.TECH] DECEMBER 2024

Paper Code: AIDS/AIIML/IOT-401

Subject: Principles of Management
For Engineers

Time: 3 Hours

Maximum Marks: 75

Note: Attempt five questions in all including Q.No1 which is compulsory. Internal choice is indicated.

- Q1. Explain the following in not more than 40 words. Attempt **any five**:
(5x5=25)
- Management- Science or art
 - Manager vs entrepreneur
 - Centralization vs decentralization
 - Informal organization
 - Job satisfaction
 - Effective communication
 - Use of computers in management control
 - Reporting in control
- Q2. What is management? Discuss principles of scientific management. (12.5)
- OR**
- Q3. What is a business organization? How does a partnership differ from a sole proprietorship in terms of ownership, liability, and decision-making? (12.5)
- Q4. What are the different types of planning in management? Explain each with examples. (12.5)
- OR**
- Q5. Differentiate between recruitment and selection. Describe employment interviews as selection technique. (12.5)
- Q6. Describe Maslow's needs hierarchy theory. Suppose that you are a manager and find yourself with one group of subordinates who apparently seek higher-order need satisfactions at work, and another group that seems concerned only with lower-order needs. What would you do to motivate each group of subordinates? Why? (12.5)
- OR**
- Q7. What is leadership? What traits do you think characterize successful leaders? Differentiate between transactional and transformational leadership. (12.5)
- Q8. Explain the non-budgetary control techniques used by organizations as an alternative to traditional budgetary controls. (12.5)
- OR**
- Q9. Discuss the importance of the controlling function in the management process. Describe the various types of control systems used by managers to ensure that organizational activities are aligned with strategic objectives. (12.5)

Write your Roll No. immediately.

Roll No. 03617711921

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END TERM EXAMINATION

SEVENTH SEMESTER [B. TECH] DECEMBER 2024

Paper Code: AIDS407T

Subject: Data Visualization

Time: 3 Hours

Maximum Marks: 75

Note: Attempt any five questions including Q. No. 1, which is compulsory. Select one question from each unit.

Q.1 (Attempt any **Five**)

[5x5=25]

- a) What is data visualization? Discuss its role in data analysis.
- b) Compare Matplotlib and Seaborn used for visualization.
- c) What are interactive visualization tools, and how do they differ from static visualization tools?
- d) How does Principal Component Analysis (PCA) reduce dimensions in a dataset?
- e) Explain the role of a bar chart, pie chart, and line graph for visualizing data.
- f) Explain how heatmaps can be used in correlation analysis.
- g) What is data reduction, and how does it impact the quality of visualizations?

UNIT-I

Q.2

[6, 6.5]

- a) Explain the role of clarity, simplicity, and accuracy in designing visualizations.
- b) What are the different types of data? Discuss various visualization techniques suitable for each type of data.

Q.3.

[12.5]

- a) What is exploratory data analysis? Discuss how visualization can highlight anomalies and outliers in a dataset with the help of suitable example.

UNIT-II

Q.4.

[6, 6.5]

- a) How parallel coordinates helps in visualizing multidimensional data.
- b) What are treemaps and explain its application with the help of an example.

Q.5

[12.5]

- a) Explain different Python based librarires. How does Tableau differ from Python-based libraries for data visualization?

UNIT-III

Q.6

[12.5]

- a) What is animation in the context of data visualization? Provide examples of dynamic visualizations used in real - world applications like stock market analysis.

Q.7.

[12.5]

- a) How does Plotly simplify the process of creating interactive visualizations compared to D3.js? How do you create an interactive line plot using Plotly? Provide an example.

UNIT-IV

Q.8

[12.5]

- a) Discuss the role of clustering algorithms in network visualization. Discuss various examples of tools and libraries commonly used for network visualization.

Q.9

[6.5, 6]

- a) Compare PCA and t-SNE.
- b) Compare network visualization and traditional data visualization.

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END TERM EXAMINATION

SEVENTH SEMESTER [B.TECH] DECEMBER 2024

Paper Code: AIDS-409T

Subject: Business Intelligence & Analytics

Time: 3 Hours

Maximum Marks: 75

Note: Attempt all questions as directed. Internal Choice is indicated.

- Q1 Attempt **any five** of the following questions:- (5x5=25)
- (a) What is the difference between Business Intelligence and Business Analytics? (5)
 - (b) Describe Descriptive Analytics and provide an example of how it can be applied in business decision-making. (5)
 - (c) What is the role of data normalization in the data analysis process? (5)
 - (d) How do visualization techniques like bar charts and line graphs help in interpreting business data? (5)
 - (e) How is clustering used in customer segmentation, and why is it important for marketing strategies? (5)
 - (f) What is the difference between regression and classification algorithms in machine learning? Provide examples of business use cases for each. (5)
 - (g) Explain the concept of real-time analytics and provide an example of its application in business. (5)
 - (h) What is Big Data, and how does it differ from traditional data processing systems? (5)
- Q2 Explain the concept of Business Intelligence (BI) and Analytics. Discuss the role of data warehousing and data mining in the BI process. (12.5)
- OR
- Q3 Discuss the differences between Descriptive, Predictive, and Prescriptive Analytics. How can each type of analytics be used to support business decision-making? (12.5)
- Q4 What is Exploratory Data Analysis (EDA), and why is it crucial in the context of Business Intelligence? Discuss various EDA techniques used to understand data. (12.5)
- OR
- Q5 What are the main types of data visualization techniques used in Business Intelligence? Discuss how charts, graphs, and heat maps can aid in interpreting business data. (12.5)
- Q6 Explain the concept of supervised learning and how it is used in business analytics for forecasting and predictive modeling. Provide examples of algorithms used in supervised learning. (12.5)
- OR
- Q7 Discuss the concept of recommendation systems. How do collaborative filtering and content-based filtering algorithms work, and how are they used to personalize customer experiences in e-commerce platforms? (12.5)
- Q8 What are the advantages and limitations of using Hadoop for Big Data processing? Discuss its role in distributed computing and how it compares to traditional database management systems (DBMS) in handling large datasets. (12.5)
- OR
- Q9 Explain the concept of "Volume, Variety, Velocity, and Veracity" in Big Data. How do these characteristics challenge businesses in managing and analyzing data? (12.5)

END TERM EXAMINATION

SEVENTH SEMESTER [B.TECH] DECEMBER 2024

Paper Code: OAE-409T

Subject: Web Intelligence

Time: 3 Hours

Maximum Marks: 75

Note: Attempt all questions as directed. Internal choice is indicated.

- Q1 Attempt **any Five** of the following questions: (5x5=25)
- a) List and explain any five suitable application of web mining.
 - b) What are the three types of web mining?
 - c) List and explain any five challenges of web mining.
 - d) Compare data mining and web mining with example.
 - e) How to convert different types of visitors?
 - f) How classification and regression can be used in web mining?
 - g) What is dashboard? Why are data dashboards useful?
 - h) What is segmentation in web analytics?

UNIT-I

- Q2 a) What is the importance of similarity measure in web mining? Formulate and explain the use of Jaccard, Euclidean and Cosine similarity functions. (7.5)
- b) What is text similarity and how to implement it? (5)

OR

- Q3 a) What is web scraping? Why is Python a Popular Programming Language for Web Scraping? List and explain types of web scrapers. (8.5)
- b) What is web scraping used for? (4)

UNIT-II

- Q4 a) What do you mean by benchmarking? What are the benefits of it? (6.5)
- b) How do you measure website traffic? How to increase website traffic? (6)

OR

- Q5 a) What do you mean by time on site? Why is it important? (6)
- b) Why is website traffic important? What are the different types of web traffic? (6.5)

UNIT-III

- Q6 a) What is automated reporting? What are the benefits of report automation? (6)
- b) What is the importance of web data analytics? How ensemble learning can be used for it? (6.5)

OR

- Q7 What is web testing? What are the approaches to web testing? List and explain any five types of web testing? (12.5)

UNIT-IV

- Q8 a) What is website ranking? Why is it important to check website rankings? (6)
- b) What is PageRank analysis? How PageRank algorithm works? (6.5)

OR

- Q9 What is Google analytics best used for? How Google analytics used in acquisition analysis, Behavior analysis and conversation analysis? Explain it with help of example. (12.5)

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END TERM EXAMINATION

SEVENTH SEMESTER (B.TECH] DECEMBER-2024

Paper Code: OAE-411T

Subject: Intelligent and Expert Systems

Time: 3 Hours

Maximum Marks: 75

Note: Attempt any five questions in all including Q.No. 1 which is compulsory. Select one question from each unit.

- Q1 Attempt all questions: **(2.5x10=25)**
- What is the primary function of an inference engine in an expert system?
 - Describe the role of semantic nets in representing knowledge.
 - How do expert systems emulate human cognitive processes?
 - Define fuzzy logic and its application in expert systems.
 - Explain the concept of Bayesian probabilistic inference in knowledge representation.
 - What is the difference between object-oriented representation and frame-based representation?
 - What is the purpose of indexing and retrieval techniques in knowledge organization?
 - Describe the role of linguistic analysis in natural language processing.
 - Explain the concept of image transformation in computer vision.
 - What is the difference between a "feature" and a "pattern" in pattern recognition?

UNIT-I

- Q2
- Explain the concept of "stored knowledge" in expert systems and how it is used to make decisions. **(6.5)**
 - Explain the abstract view of modeling in expert systems, including elementary knowledge and computational logic. **(6)**
- Q3
- Describe the process of knowledge acquisition and manipulation in expert systems, using examples. **(6.5)**
 - Compare and contrast the use of predicate logic and simple logic connectives in expert systems. **(6)**

UNIT-II

- Q4 Describe the structure of a graph in knowledge representation and the role of search and control strategies in expert systems, including AND-OR graphs. **(12.5)**

P-1/2

[-2-]

- Q5 (a) Compare and contrast the use of frames and semantic nets in knowledge representation. **(6.5)**
(b) Describe the differences between forward and backward chaining in rule-based expert systems, and provide an example of each. **(6)**

UNIT-III

- Q6 Discuss the importance of knowledge organization in expert systems, including integration and memory organization. **(12.5)**
Q7 (a) Explain the process of natural language generation in expert systems. **(6.5)**
(b) Describe the application of basic parsing techniques in natural language processing. **(6)**

UNIT-IV

- Q8 Explain the concept of "deep learning" and how it is used in expert systems for tasks such as image recognition and natural language processing. **(12.5)**
Q9 Explain the process of low-level, medium and high-level processing in computer vision. Also, explain the concept of "back propagation" in neural networks. **(12.5)**

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END TERM EXAMINATION

SEVENTH SEMESTER (B.TECH) DECEMBER-2024

Paper Code: OAE-421T

Subject: Digital & Smart Cities

Time: 3 Hours

Maximum Marks: 75

Note: Attempt any five questions as directed including Q. No.1 which is compulsory. Internal choice is indicated.

- Q1 Attempt **any five** of the following questions: (5x5=25)
- (a) Define a smart city and its need in today's world?
- (b) What are the components of a smart city infrastructure, and how do they interact?
- (c) What are the benefits of open data initiatives in smart cities?
- (d) Discuss the potential of AI and IoT in improving healthcare delivery in smart cities.
- (e) Explain how AI and IoT can be utilized to enhance energy efficiency in buildings.
- (f) How blockchain can be useful in smart cities, explain with a suitable use case?
- (g) What are the ethical implications of using AI and IoT technologies in smart cities?
- (h) What are the emerging trends in smart governance and citizen engagement?
- Q2 Explain importance of cloud computing, edge computing, and data centers in the context of smart cities. (12.5)
- OR**
- Q3 Evaluate the impact of smart city initiatives on quality of life, economic development, and sustainability. (12.5)
- Q4 Explain the concept of the Internet of Things (IoT) and its role in data collection and analysis for smart cities. (12.5)
- OR**
- Q5 Analyze a successful smart city implementation in India, highlighting its key features, challenges, and outcomes. (12.5)
- Q6 Discuss the role of AI and IoT in optimizing traffic flow and reducing congestion in smart cities. How can real-time data from sensors and cameras be used to improve traffic management? (12.5)
- OR**
- Q7 How can smart waste bins, waste tracking systems, and recycling optimization algorithms reduce waste and environmental impact? (12.5)
- Q8 How can e-governance initiatives improve the efficiency and transparency of government services? Discuss the role of digital platforms in facilitating citizen-government interactions. (12.5)
- OR**
- Q9 What are the cyber security challenges associated with smart cities? How can we protect sensitive citizen data and critical infrastructure from cyber threats? (12.5)

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