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School of Computer Science and Engineering & Information and Science
Mid - Term Examinations - November 2024

Semester: V

Date: 07-11-2024

Course Code: CSE2026

Time: 09.30am to 11.00am

Course Name: Data Handling & Visualization

Max Marks: 50

Program: B. Tech

Weightage: 25%

Instructions:

(i) Read all questions carefully and answer accordingly.

(ii) Do not write anything on the question paper other than roll number.

Part A

Answer ALL the Questions. Each question carries 2 marks.

5Qx2M=10M

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|---|---|---------|----|-----|
| 1 | Define data analysis. List two tools for data analysis. | 2 Marks | L1 | C01 |
| 2 | List any two methods of data collection. | 2 Marks | L1 | C01 |
| 3 | Define data visualization with two advantages. | 2 Marks | L1 | C01 |
| 4 | List out techniques for scalar visualization. | 2 Marks | L1 | C02 |
| 5 | List out techniques for vector visualization. | 2 Marks | L1 | C02 |

Part B

Answer ALL Questions. Each question carries 10 marks.

4QX10M=40M

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|---|---|---------|----|-----|
| 6 | 6a. Define data validation. | 1 Marks | L1 | C01 |
| | 6b. Explain different stages of Data Preparation. | 6 Marks | L1 | C01 |
| | 6c. Demonstrate a 2-D numpy array and check the shape (using python). | 3 Marks | L3 | C01 |

or

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|----------|------------|---|----------------|-----------|------------|
| 7 | 7a. | List any three benefits of Data preparation. | 3 Marks | L1 | C01 |
| | 7b. | Explain how can you remove duplicates from a data frame while transforming data (using python). | 5 Marks | L2 | C01 |
| | 7c. | Recall which function will you use to create dummy variables during data transformation. | 2 Marks | L1 | C01 |
| 8 | 8a. | Explain different types of data collection. | 4 Marks | L2 | C01 |
| | 8b. | Illustrate a simple line plot by taking a suitable data (using python). | 3 Marks | L3 | C01 |
| | 8c. | Demonstrate how can you fill missing values in a data frame column named as 'MRP' with a value 88 (using python). | 3 Marks | L3 | C01 |

or

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|-----------|-------------|---|----------------|-----------|------------|
| 9 | 9a. | Explain four levels of Data validation. | 4 Marks | L1 | C01 |
| | 9b. | Illustrate a simple bar graph using suitable data (using python). | 3 Marks | L3 | C01 |
| | 9c. | Summarise the difference between data cleaning and data transformation. | 3 Marks | L2 | C01 |
| 10 | 10a | Explain colour mapping technique of scalar visualization with formula. | 5 Marks | L2 | C02 |
| | 10b. | Define transfer function with respective to scalar visualization. | 3 Marks | L1 | C02 |
| | 10c. | List out examples for 2-D contour displays. | 2 Marks | L1 | C02 |

or

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|-----------|---|----------------|-----------|------------|
| 11 | 11a. Demonstrate different techniques of filling missing values using pandas in python. | 6 Marks | L3 | C02 |
| | 11b. Explain contouring technique of scalar data visualization. | 3 Marks | L1 | C02 |
| | 11c. Recall which function do we use to read csv files using pandas in python. | 1 Marks | L1 | C02 |
| 12 | 12a. Explain vector glyphs. | 3 Marks | L1 | C02 |
| | 12b. Define vector color coding. | 3 Marks | L1 | C02 |
| | 12c. Illustrate how can we split a data frame and make groups and use aggregate function with them during data wrangling (take suitable example and use python). | 4 Marks | L2 | C02 |

or

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|-----------|--|----------------|-----------|------------|
| 13 | 13a. Explain height plots with formula and example. | 5 Marks | L1 | C02 |
| | 13b. Explain space filling method of visualizing hierarchical structures through rectangular layouts. | 4 Marks | L1 | C02 |
| | 13c. Recall which function do we use to read excel files using pandas in python. | 1 Marks | L1 | C02 |