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JAYPEE UNIVERSITY OF INFORMATION TECHNOLOGY, WAKNAGHAT

TEST -1 EXAMINATION- 2026

B. Tech-VI Semester (CSE/IT)

COURSE CODE (CREDITS): 25B1WCI642 (3) MAX. MARKS:15

COURSE NAME: Introduction to Data Analytics and Visualization

COURSE INSTRUCTOR: Dr Nancy Singla MAX. TIME: 1 Hour

Note: *(a) All questions are compulsory.*
(b) The candidate is allowed to make suitable numeric assumptions wherever required for solving problems.
(c) Use of calculators is not allowed.

Q. No.	Question	CO	Marks
Q1	"Data Science is the backbone of digital transformation." Explain its strategic role in improving decision-making, predictive capabilities, and organizational competitiveness.	CO1	3
Q2	A city traffic management authority plans to use data science to analyze and reduce traffic congestion using data collected from sensors, CCTV cameras, GPS devices, and traffic signals. Illustrate the Data Science Life Cycle for this scenario by explaining the role of each stage in developing an effective traffic congestion management system.	CO1	3
Q3	A retail store has a CSV file named 'products' with columns: ProductID, Category, Sales, Rating. • Using Pandas, filter products with `Rating > 4.0`. • Using NumPy, calculate the average sales of the filtered products. • Using Matplotlib, plot a bar chart of total sales per category. Explain the role of each library in performing these tasks.	C02	3
Q4	Consider the following python code snippet and write the code for the following: data = {'Region1': {'Sales': [100, 150, 200]}, 'Region2': {'Sales': [120, 130, 140]}} (a) Calculate the total sales of Region1. (b) Find the maximum sale in Region2. (c) Add a new sale 160 to Region2.	C02	3

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<table>
<tr><td>Q5</td><td>Write the output of the following code snippets:
(a) def func(val, lst=[]):
        lst.append(val)
        return lst
    print(func(1))
    print(func(2))
    print(func(3, []))
    print(func(4))

(b) data <- list(
  x = list(1, 2, list(a = 10, b = 20)),
  y = c(3, 4, 5)
)

result <- data$x[[3]]$b + data$y[2]
print(result)

(c) date_str <- "31-12-2023"
    date_obj <- as.Date(date_str, format = "%d-%m-%Y")
    formatted_date <- format(date_obj, "%B %d, %Y")
    print(formatted_date)</td><td>CO2</td><td>3</td></tr>
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