JAYPEE UNIVERSITY OF INFORMATION TECHNOLOGY, WAKNAGHAT

TEST -1EXAMINATION- 2026

BBA-VSemester

COURSE CODE (CREDITS):25BBWHS532 (4) MAX. MARKS: 15

COURSE NAME: DATA ANALYTICS USING PYTHON

COURSE INSTRUCTOR: Mr. SANDEEP KUMAR PATEL MAX. TIME: 1 Hr.

Note:*(a)All questions are compulsory.*

(b) The candidate is allowed to make Suitable numeric assumptions wherever required for solving problems

(c) Use of calculator is not allowed

Q.No	Question	CO	Marks
Q1	*A hospital has noticed that its emergency department becomes overcrowded on certain days. At the same time, some hospital departments have unused beds and medical staff.The hospital has historical data containing patient arrivals, admission times, discharge times, treatment duration, department capacity, doctor availability, day of the week, and emergency cases.Management wants to reduce patient waiting time without unnecessarily increasing staffing costs."* Develop a data-driven decision strategy for the hospital. Your answer should explain: a) Which variables are important for understanding the problem. b) How historical patterns could be used to anticipate overcrowding. c) How the hospital could decide where and when to allocate additional staff or beds. d) What trade-offs should be considered before implementing the recommendation.	1	[4]
Q2	*An online learning platform finds that students who watch many video lectures do not necessarily achieve higher examination scores. Some students watch almost every lecture but perform poorly, while others watch fewer lectures and score highly.The platform has data on video-watch duration, number of attempts, quiz scores, assignment submissions, discussion activity, login frequency, and final examination marks.* The management initially concludes that "watching more videos does not improve learning."Do you agree with this conclusion? Analyze the scenario and explain: a) What additional analysis should be performed before accepting the conclusion?	1	[4]

123

	b) Which variables might reveal hidden patterns? c) How could student groups be segmented? d) What type of evidence would be required before making a recommendation to change the learning platform?		
Q3	*"A bank observes an increase in suspicious transactions. It has customer transaction history, transaction amounts, locations, transaction times, and previous fraud records."* a) How would you apply the four types of data analytics to address this problem? b) What decision could the bank take based on the analytical results?	1	[2]
Q4	*"A food-delivery company wants to improve delivery efficiency. It has data about orders, delivery times, customer ratings, restaurant locations, discounts, and delivery partners."* *The company wants to know:* *i. What was the average delivery time last month?* *ii. Why did delivery time increase on weekends?* *iii. Which locations are likely to have high demand next month?* *iv. How many delivery partners should be allocated to each location?* Identify which type of analytics should be used for each question and justify your choices. This follows the same framework used in the course material's food-delivery case.	2	[2]
Q5	*"A retail company records its monthly sales for a particular product over five months:January: ₹45,000, February: ₹52,000, March: ₹48,000, April: ₹60,000, May: ₹55,000* *The management wants to analyze the overall sales performance using Python and NumPy."* Using Python and NumPy, create an array containing the monthly sales data and write a program to calculate and display: a) Total sales b) Average sales c) Maximum sales d) Minimum sales e) Median sales	2	[3]