Reg No.:_____ Name:_____

APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY

B.Tech Degree S8 (R, S) Exam April 2025 (2019 Scheme)

Course Code:ADT402

Course Name: BUSINESS ANALYTICS

Max. Marks: 100 **Duration: 3 Hours**

PART A

Answer all questions, each carries 3 marks. Marks

1		Explain the difference between prescriptive and predictive analytics.	(3)
2		What is the role of data cleaning in a business analytics framework?	(3)
3		Calculate the probability of getting exactly 3 heads in 5 coin tosses using the binomial distribution formula.	(3)
4		Define the term "standard error" in the context of sampling distributions.	(3)
5		How does Tableau handle blended data from multiple sources?	(3)
6		What is the purpose of a "calculated field" in Tableau?	(3)
7		Explain how sentiment analysis decodes customer intent from social media comments.	(3)
8		What is the significance of "clickstream analytics" in e-commerce?	(3)
9		Differentiate between K-means and hierarchical clustering.	(3)
10		How does "break-even analysis" assist in financial decision-making?	(3)

PART B

Answer any one full question from each module, each carries 14 marks.

Module I

11	a)	Describe the role of business analytics in market share estimation and portfolio stress testing.	(7)
	b)	Compare structured and unstructured data with real-world examples.	(7)
		OR	
12	a)	Explain the 5 V's of business analytics and their impact on data modelling.	(7)
	b)	How does outlier detection improve the quality of business insights?	(7)

Module II

13 a) The mean weight of students in a class is 60 kg with a standard deviation of 5 kg. Calculate the probability that a randomly selected student weighs between 55 kg and 65 kg (assume normal distribution). (7)

b) Explain how time series decomposition helps in forecasting sales trends. (7)

OR

14 a) A population has a mean of 50 and a standard deviation of 8. Find the probability that the sample mean exceeds 52 for a sample size of 36. (7)

b) Discuss the role of correlation in analysing customer purchase patterns. (7)

Module III

15 a) Describe the steps to create a dual-axis chart in Tableau. (7)

b) How do filters enhance data visualization in Tableau dashboards? (7)

OR

16 a) Explain the process of joining and blending data from Excel and SQL sources in Tableau. (7)

b) Demonstrate how to use parameters for dynamic filtering in Tableau. (7)

Module IV

17 a) Design an A/B testing framework to optimize a website's checkout page. (7)

b) How does Monte Carlo simulation model uncertainty in supply chain management? (7)

OR

18 a) Discuss the steps to perform market basket analysis for a retail dataset. (7)

b) Explain the ethical challenges in social media analytics. (7)

Module V

19 a) Solve the following clustering problem using K-means (k=2) for the given data points: (7)

x	2	4	1	6	5
y	3	7	5	2	8

b) How does factor analysis reduce dimensionality in datasets? (7)

OR

20 a) Build a decision tree using the ID3 algorithm for the dataset below (show entropy calculations): (7)

Outlook	Humidity	Play Golf
Sunny	High	No
Rainy	High	Yes
Overcast	Normal	Yes

b) Explain how Segmentation Analysis improves customer targeting strategies in e-commerce. (7)

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