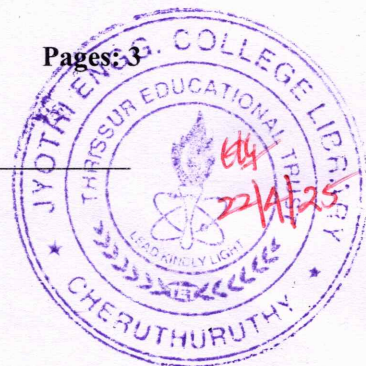


Reg No.: _____

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. (7)
Calculate the probability that a randomly selected student weighs between 55 kg and 65 kg (assume normal distribution).
- 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 (7)
that the sample mean exceeds 52 for a sample size of 36.
- 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 (7)
Tableau.
- 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 (7)
management?

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 (7)
points:

| | | | | | |
|---|---|---|---|---|---|
| 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)
