

Enrollment No./Seat No.:

GUJARAT TECHNOLOGICAL UNIVERSITY
MBA - SEMESTER - I EXAMINATION - WINTER 2025

Subject Code: MB01000031

Date: 16-01-2026

Subject Name: Business Research and Statistical Analysis

Time: 10:30 AM TO 01:30 PM

Total Marks: 70

Instructions

- 1. Attempt all questions.**
- 2. Make suitable assumptions wherever necessary.**
- 3. Figures to the right indicate full marks.**
- 4. USE of SIMPLE calculators AND non-programmable scientific calculators are permitted.**

| | Marks |
|---|--------------|
| Q.1 | 14 |
| (a) Validity and Reliability | |
| (b) Focus Group | |
| (c) Depth Interview | |
| (d) Research Objective | |
| (e) Measurement and Scaling | |
| (f) ANOVA | |
| (g) Central Tendency | |
| Q.2 (a) Define business research. Why is it important for decision-making in organizations? | 07 |
| (b) What is the role of literature review in business research? | 07 |
| OR | |
| (b) Describe the process of hypothesis formulation. Why is it an essential part of business research? | 07 |
| Q.3 (a) Explain Projective techniques in qualitative research. | 07 |
| (b) Compare and contrast lab experiments with field experiments in causal research. Discuss the advantages and disadvantages of each. | 07 |
| OR | |
| (a) Explain sampling design with suitable examples. Differentiate between probabilistic and non-probabilistic sampling . | 07 |
| (b) Discuss the sources of data, distinguishing between primary and secondary data with relevant examples. | 07 |
| Q.4 (a) What are the essential components of a Research Proposal or Synopsis? Explain the purpose of each component. | 07 |

- (b) Suppose that in past years the average price per square foot for warehouses in the India has been 32.28. A national real estate investor wants to determine whether that figure has changed now. The investor hires a researcher who randomly samples 19 warehouses that are for sale across the India and finds that the mean price per square foot is 31.67, with a standard deviation of 1.29. Assume that prices of warehouse footage are normally distributed in population. If the researcher uses a 5% level of significance, what statistical conclusion can be reached?

07

OR

- (a) What are the key components of a Research Report? Explain the purpose of each section with suitable examples.
- (b) A group of 30-year-olds is interviewed to determine whether the type of music most listened to by people in their age category is independent of the geographic location of their residence. Use the chi-square test of independence, $\alpha = .01$, and the following contingency table to determine whether music preference is independent of geographic location.

07

07

| | | Type of Music Preferred | | | |
|-------------------|-----------|-------------------------|-------|---------|-----------|
| Geographic Region | | Rock | R & B | Country | Classical |
| | Northwest | 140 | 32 | 5 | 18 |
| | South | 134 | 41 | 52 | 8 |
| | West | 154 | 27 | 8 | 13 |

Q.5

Case Study: Employee Engagement in a Tech Startup

TechEdge Solutions, a growing startup in the software development sector, has noticed a decline in project delivery efficiency and rising attrition rates. Internal feedback indicates potential issues with employee engagement and workplace satisfaction. To investigate, the HR and Operations teams initiate a study to evaluate engagement levels and identify areas for improvement.

Research Objective:

To assess employee engagement levels, explore factors impacting motivation and retention, and offer actionable recommendations for a better work environment.

Methodology – Mixed-Method Approach:

1. Quantitative Survey:

An anonymous questionnaire is distributed to 150 employees, using a 5-point Likert scale to rate work satisfaction, clarity of role, recognition, work-life balance, and leadership support.

2. Qualitative Focus Groups:

Small group discussions with 5–8 employees per department explore deeper insights into what motivates or demotivates them.

3. **Observations:**

Managers observe team dynamics during project sprints and meetings to identify collaboration and communication gaps.

4. **Secondary Data Analysis:**

HR analyzes exit interview data, previous internal surveys, and attendance trends.

Key Findings

- **Engagement Levels:**

Only 55% of employees feel consistently engaged; 30% are neutral, and 15% feel disengaged, mainly in technical support and QA roles.

- **Key Factors:**

Employees value recognition, career growth, and transparent communication. Low morale is linked to unclear roles, excessive workload, and limited feedback from managers.

- **Team Observations:**

Teams with frequent stand-up meetings and open feedback mechanisms show higher morale and productivity.

Recommendations:

- **Enhance Communication:**

Implement bi-weekly feedback sessions between team leads and employees.

- **Recognition Programs:**

Introduce a peer-nominated rewards system to celebrate achievements.

- **Training & Development:**

Invest in leadership and soft skills training, especially for new managers.

- (a)** **07**
Identify the type of research used in this case. How does the mixed-method approach strengthen the validity of the findings?
- (b)** Suggested Research Objectives and Research Questions **07**
- OR**
- (a)** Explain Hypotheses Based on the Findings **07**
- (b)** Explain how the review of literature and analysis of secondary data can contribute to understanding employee engagement better in this context **07**
