

Code No: **24BA2T5**

**I MBA - II Semester – Regular / Supplementary Examinations
JULY 2026**

RESEARCH METHODS FOR BUSINESS DECISIONS

Duration: 3 Hours

Max. Marks: 70

Note: 1. This question paper contains two Parts: Part-A and Part-B.

2. Part-A contains 5 essay questions with an internal choice from each unit.
Each Question carries 12 marks.

3. Part-B contains one Case Study for 10 Marks.

4. All parts of Question paper must be answered in one place

BL – Blooms Level

CO – Course Outcome

PART - A

			BL	CO	Max. Marks
<u>UNIT – I</u>					
1.	a)	Discuss the motivations and types behind conducting research.	L2	CO1	6 M
	b)	Explain the criteria of good research and its significance in ensuring research quality.	L2	CO1	6 M
OR					
2.	a)	Analyze how a well-conducted literature review can help in identifying gaps in a specific research domain.	L3	CO1	6 M
	b)	Examine the challenges researchers face in selecting a research problem.	L3	CO1	6 M

UNIT – II

3.	a)	Explain the characteristics of a good research design and why they are important.	L2	CO2	6 M
	b)	Differentiate between exploratory, descriptive and experimental research designs with examples.	L3	CO2	6 M

OR

4.	a)	Analyze the different types of sampling and discuss their impact on research outcomes.	L3	CO2	6 M
	b)	Describe the types of data collection used in research and provide examples for each.	L4	CO2	6 M

UNIT-III

5.	a)	Illustrate the levels and criteria for good measurement and why are they essential in research?	L3	CO3	6 M
	b)	Compare and contrast Likert Scale and Semantic Differential Scale in preparation of the questionnaire.	L3	CO3	6 M

OR

6.	a)	Examine the role of pilot study in improving the validity and reliability of research instruments.	L3	CO3	6 M
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	b)	Analyze the advantages and limitations of case study research in social sciences.	L4	CO3	6 M
<u>UNIT – IV</u>					
7.	a)	Explain different types of hypothesis formulation in research.	L2	CO4	6 M
	b)	Compare parametric and non-parametric tests, providing examples of when to use each.	L3	CO4	6 M
OR					
8.	a)	Examine the role of bivariate analysis (Chi-square test) in identifying relationships between variables.	L3	CO4	6 M
	b)	How does multivariate analysis (ANOVA) help in complex decision-making scenarios? Discuss.	L3	CO4	6 M
<u>UNIT – V</u>					
9.	a)	Explain the importance of report writing in research.	L2	CO5	6 M
	b)	Develop a research report structure for a study on employee job satisfaction.	L3	CO5	6 M
OR					
10.	a)	What are the different types of research reports? Provide examples.	L2	CO5	6 M

	b)	Analyze the role of AI tools in research, focusing on their strengths and limitations.	L4	CO5	6 M
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PART – B

11.	CASE STUDY	L5	CO4	10 M																				
A retailer wants to analyze whether product preference (Electronics, Clothing, Home Appliances) is dependent on gender. The following survey data is collected:																								
<table><tr><td>Product Type</td><td>Male</td><td>Female</td><td>Total</td></tr><tr><td>Electronics</td><td>60</td><td>40</td><td>100</td></tr><tr><td>Clothing</td><td>50</td><td>70</td><td>120</td></tr><tr><td>Home Appliances</td><td>40</td><td>40</td><td>80</td></tr><tr><td>Total</td><td>150</td><td>150</td><td>300</td></tr></table>					Product Type	Male	Female	Total	Electronics	60	40	100	Clothing	50	70	120	Home Appliances	40	40	80	Total	150	150	300
Product Type	Male	Female	Total																					
Electronics	60	40	100																					
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Perform a Chi-square test for independence to check if product preference depends on gender. (Use $\alpha = 0.05$)																								

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PART - A

		Unit - I	Max. Marks
1	a)	Discuss the motivations of research types behind conducting research	2M 4M
	b)	Explain the criteria of good research and it's significance in ensuring research quality	6M
		Or	
2	a)	Analyse how a well-conducted literature review can help in identifying gaps in a specific research domain.	6M
	b)	Examine the challenges researchers face in selecting a research problem.	6M
		Unit - II	
3	a)	Explain the characteristics of a good research design and why they are important.	6M
	b)	Differentiate between exploratory, descriptive and experimental research designs with examples.	6M
		Or	
4	a)	Analyze the different types of sampling and discuss their impact on research outcomes.	6M
	b)	Describe the types of data collection used in research and provide examples for each.	6M
		Unit - III	
5	a)	Illustrate the levels and criteria for good measurement and why are they essential in research	6M
	b)	Compare and contrast Likert Scale and Semantic Differential Scale in preparation of the questionnaire	6M
		Or	
6	a)	Examine the role of pilot study in improving the validity and reliability of research instruments.	6M
	b)	Analyze the advantages limitations of case study research in social sciences.	3M 3M
		Unit -IV	

7	a)	Explain different types of hypothesis formulation in research.	6M
	b)	Compare parametric and non-parametric tests, providing examples of when to use each.	6M
		Or	
8	a)	Examine the role of bivariate analysis (Chi-square test) in identifying relationships between variables.	6M
	b)	How does multivariate analysis (Anova) help in complex decision-making scenarios? Discuss	6M
		UNIT - V	
9	a)	Explain the importance of report writing in research.	6M
	b)	Develop a research report structure for a study on employee job satisfaction.	6M
10	a)	What are the different types of research reports? Provide examples	6M
	b)	Analyze the role of AI Tools in research, focusing on their strengths and limitations	6M

PART – B

11.	CASE STUDY	L4	CO1	10M	
Case:					
Introduction					2M
Questions:					
A retailer wants to analyze whether product preference (Electronics,clothing,Home appliances) is dependent on gender.The following survey data is collected:					2M
Product type	Male	Female	Total		2M
Electronics	60	40	100		
Clothing	50	70	120		
Home appliances	40	40	80		2M
Total	150	150	300		
Perform a Chi-square test independence to heck if product preference depends on gender.(Use alpha=0.05					2M

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PART-A**UNIT-1****1.a) Discuss the motivations and types behind conducting research .****Discuss the motivations**

Research motivation refers to the reasons, interests, or driving forces that encourage an individual to undertake scientific inquiry and generate new knowledge. Motivation influences the choice of research topic, the effort invested, persistence during challenges, and the quality of research outcomes.

According to C.R. Kothari (2004), *motivation in research is the force that prompts researchers to investigate problems systematically and contribute to the advancement of knowledge.*

Types behind conducting research

1. Quantitative Research
2. Qualitative Research
3. Descriptive Research
4. Analytical Research
5. Applied Research
6. Fundamental Research
7. Exploratory Research
8. Conclusive Research
9. Case study
10. Historical Research

b) Explain the criteria of good research and it's significance in ensuring research quality

Good research is systematic, objective, logical, and evidence-based. It follows scientific principles to produce valid, reliable, and useful findings that contribute to knowledge and solve practical problems.

1. To know about unknown
2. To describe the features
3. To explain the phenomenon
4. To predict future activities
5. To influence activities

Or**2.a) Analyse how a well conducted literature review can help in identifying gaps in a specific research domain**

A literature review is a systematic and critical evaluation of existing research, theories, concepts, and evidence related to a research problem. It helps researchers understand the current state of knowledge, identify research gaps, and establish a strong theoretical and methodological foundation for their study.

Identifying gaps in a specific research domain

1. Establishes context
2. Identifying gaps
3. Inform methodology
4. Support hypothesis
5. Identifies Population Gaps

b). Examine the challenges researchers face in selecting a research problem.

Researchers encounter several challenges throughout the research process, from selecting a research problem to publishing the findings. These challenges may affect the quality, validity, reliability, and timeliness of research. Overcoming these issues requires careful planning, methodological rigor, ethical conduct, and effective resource management.

challenges researchers face in selecting a research problem

1. Lack of Clarity and Focus
2. Too Broad or Too Narrow Topic
3. Lack of Resources
4. Lack of Researcher's Interest and Competence
5. Ethical Issues
6. Availability of Data
7. Time Constraints
8. Originality and Novelty

UNIT-II

3. a) Explain the characteristics of a good research design and why they are important.

A **research design** is the overall plan or blueprint that guides the process of collecting, measuring, and analyzing data to answer research questions or test hypotheses. A good research design ensures that the study is systematic, valid, reliable, and capable of producing accurate and meaningful results.

Characteristics of a good research design and why they are important

1. Flexibility
2. Appropriateness
3. Efficiency
4. Minimization of Bias
5. Reliability
6. Validity
7. Simplicity
8. Accuracy
9. Control of Variables
10. Objectivity

b) Differentiate between exploratory, descriptive and experimental research designs with examples.

Exploratory Research:

1. Flexible and unstructured
2. Qualitative in nature
3. Small sample size
4. Not conclusive
5. Focuses on understanding rather than measuring

Descriptive Research:

1. Quantitative nature
2. Qualitative nature
3. Observational nature
4. Cross-sectional nature
5. Springboard for further research

Experimental Research:

1. Pre-Experimental
 - One-Shot Case Study
 - One Group Pre-Test - Post-Test
 - Static Group
2. True Experimental
 - Pre-Test - Post-Test Control Group
 - Post-Test Only Control Group
 - Solomon Four Group
3. Quasi Experimental
 - Time Series

- Multiple Time Series
- 4. Statistical
 - Randomized Blocks
 - Latin Square

Or

4.a) Analyze the different types of sampling and discuss their impact on research outcomes.

Types of sampling:

- 1. Probability Sampling**
- 2. Non-Probability Sampling**

Probability Sampling:

1. Simple Random Sampling
2. Clustered Sampling
3. Systematic Sampling
4. Stratified Random Sampling

Non-Probability Sampling:

1. Convenience Sampling
2. Consecutive Sampling
3. Quota Sampling
4. Purposive or Judgmental Sampling
5. Snowball Sampling

b) Describe the types of data collection used in research and provide examples for each.
6M CO2

Types of Data Collection

1. Census method
2. Sample method

Classification of Data

1. Primary Data
2. Secondary Data

Sources of Data

A. Secondary Sources (Already Existing Data)

1. Government publications
2. Earlier research
3. Census
4. Personal records
5. Client histories
6. Service records

B. Primary Sources (First-hand Data)

1. Observation Method
2. Interviewing Method
3. Questionnaire Method

UNIT-III

5.a) Illustrate the levels and criteria for good measurement and why are they essential in research?

1. Nominal Scale

- Named variables

2. Ordinal Scale

- Named + Ordered variables

3. Interval Scale

- Named + Ordered + Proportionate interval between variables

4. Ratio Scale

- Named + Ordered + Proportionate interval between variables + can accommodate absolute zero

b) Compare and contrast Likert Scale and Semantic Differential Scale in preparation of the questionnaire.

The Likert Scale and Semantic Differential Scale are both types of itemized rating scales used in research to measure attitudes and opinions. The Likert Scale presents respondents with a statement and asks them to indicate their level of agreement or disagreement using a 5-point scale, typically ranging from "Strongly Disagree" to "Strongly Agree". I

Five-Point Likert Scale (Most Common)

Scale	Score
Strongly Disagree	1
Disagree	2
Neutral	3
Agree	4
Strongly Agree	5

In contrast, the Semantic Differential Scale is a 7-point bi-polar scale where respondents rate an object on various attributes by choosing a point between two opposite adjectives, such as "Stylish–Unfashionable" or "High Quality–Low Quality". It uses values from +3 to -3 and is useful for capturing the intensity and direction of feelings.

Or

6.a) Examine the role of pilot study in improving the validity and reliability of research instruments.

A **pilot study** is a small-scale preliminary study conducted before the main research to test the feasibility of the research design, data collection procedures, and research instruments such as questionnaires, interview schedules, or observation checklists. It helps researchers identify and correct potential problems before conducting the full-scale study.

improving the validity and reliability of research instruments.

- 1. Reduces Errors
- 2.Enhances Data Quality and Accuracy
- 3. Refines Research Questions and Hypotheses
- 4. Provides Preliminary Insights
- 5. Increases Researcher Confidence

b) Analyze the advantages and limitations of case study research in social sciences.

Advantages of Case Study

- 1. In-depth Analysis
- 2. Holistic Understanding
- 3. Useful for Rare/Unique Cases
- 4. Generates Hypotheses
- 5. Flexible Data Collection

Limitations of Case Study

- 1. Lack of Generalizability
- 2. Time Consuming and Costly
- 3.Researcher Bias
- 4. No Control Over Variables
- 5. Limited Reliability

UNIT-IV

7.a) Explain different types of hypothesis formulation in research

A **hypothesis** is a tentative, logical, and testable statement that predicts the relationship between two or more variables. It provides direction to research by guiding data collection, analysis, and interpretation.

According to **Kerlinger and Lee (2000)**, *a hypothesis is a conjectural statement about the relationship between two or more variables.*

Types of hypothesis formulation in research

1. Simple Hypothesis
2. Complex Hypothesis
3. Directional Hypothesis
4. Non-Directional Hypothesis
5. Null Hypothesis (H_0)
6. Alternative Hypothesis (H_1)

b) Compare parametric and non-parametric tests, providing examples of when to use each.

1. Parametric Tests

A. One Sample

1. T test
2. Z test

B. Two Sample

1. Ind. sample
 - Two group t test
 - Z test
2. Paired sample
 - Paired t test

2. Nonparametric Tests

A. One sample

1. Chi-square
2. K-S
3. Runs test
4. Binomial

B. Two sample

1. Ind. Sample
 - Chi-square
 - Mann-Whitney
 - Median
 - K-S
2. Paired sample
 - Sign
 - Wilcoxon
 - Chi-square

Or

8.a) Examine the role of bivariate analysis (Chi-square test) in identifying relationships between variables.

Bivariate analysis is a statistical technique used to examine the relationship between two variables. When both variables are categorical (nominal or ordinal), the Chi-Square (χ^2) Test of Independence is one of the most commonly used non-parametric statistical tests.

The Chi-Square test helps researchers determine whether there is a significant association between two categorical variables. It is widely applied in business, management, social sciences, healthcare, and education research.

$$\chi^2 = \sum E(O-E)^2$$

role of bivariate analysis (Chi-square test) in identifying relationships between variables.

1. Tests Association Between Two Categorical Variables
2. Compares Observed vs Expected Frequencies
3. Uses Test of Independence for Relationship Check
4. Determines Statistical Significance Through P-Value
5. Applicable Only to Categorical Data

**b) How does multivariate analysis (Anova) help in complex decision making scenarios?
Discuss**

Analysis of Variance (ANOVA) is a statistical technique used to compare the means of three or more groups to determine whether the differences among them are statistically significant. It helps researchers and decision-makers identify which factors influence outcomes and supports evidence-based decisions in business, management, healthcare, education, and public policy.

According to Ronald A. Fisher (1925), ANOVA is a statistical method that separates total variation into different sources to determine whether group means differ significantly.

multivariate analysis (Anova) help in complex decision making scenarios

1. Tests Significant Differences Between Multiple Group Means
2. Compares Variation Between Groups vs Within Groups
3. Assesses Effect of Independent Variable on Dependent Variable
4. Enables Choice Between One-Way and Two-Way ANOVA Based on Variables
5. Supports Hypothesis Testing for 3 or More Independent Groups
6. Ensures Valid Decisions Through Statistical Assumptions.

Unit -V

9.a) Explain the importance of report writing in research.

Research report writing is the final stage of the research process, where the researcher systematically presents the research problem, objectives, methodology, analysis, findings, conclusions, and recommendations. A well-written research report communicates the study's outcomes clearly and enables readers to understand, evaluate, and apply the research findings

Importance of report writing

- A research report is necessary to translate complex data into a permanent, transparent, and structured record. It allows your findings to be communicated, validated, and built upon by others, ensuring your hard work drives real-world decisions and adds to the collective knowledge of your field.

Importance of Report Writing in Research

A research report provides a complete record of the study, including:

- Introduction
- Research problem
- Objectives
- Literature review
- Research methodology
- Data analysis
- Findings
- Conclusions
- Recommendations

b) Develop a research report structure for a study on employee job satisfaction.

research report structure

- 1. Title Page
- 2. Abstract
- 3. Introduction
- 4. Methodology
- 5. Results
- 6. Discussion
- 7. Conclusion
- 8. References
- 9. Appendices

Or

10.a) What are the different types of research reports? Provide examples.

A research report is a systematic document that presents the objectives, methodology, analysis, findings, conclusions, and recommendations of a research study. The format and style of a research report vary depending on its purpose, audience, and the nature of the research.

Types of Research Reports

- 1. Academic Research Reports
- 2. Business Reports
- 3. Technical Reports
- 4. Progress Reports
- 5. Feasibility Reports

b) Analyze the role of AI Tools in research, focusing on their strengths and limitations. .

Artificial Intelligence (AI) tools are transforming the research process by automating repetitive tasks, improving data analysis, enhancing accuracy, and accelerating knowledge discovery. AI enables researchers to efficiently review literature, collect and analyze data, generate insights, and communicate findings. Rather than replacing researchers, AI serves as an intelligent assistant that improves productivity and supports evidence-based decision-making.

Role of AI Tools in Research

1. Literature Review & Discovery
 - Citation Mapping
 - Synthesis & Querying
 - Summarization
2. Data Analysis
 - Pattern Recognition
 - Visualization
3. Academic Writing & Editing
 - Drafting & Structuring
 - Proofreading
4. Best Practices & Ethical Use
 - Verify Claims
 - Protect Data
5. Maintain Transparency
 - Clearly disclose AI tool usage and its contribution to the research.

PART-B
CASE STUDY

CO4 10M

11.A retailer wants to analyze whether product preference (Electronics, clothing, Home appliances) is dependent on gender. The following survey data is collected:

Product type	Male	Female	Total
Electronics	60	40	100
Clothing	50	70	120
Home appliances	40	40	80
Total	150	150	300

Perform a Chi-square test independence to check if product preference depends on gender. (Use $\alpha=0.05$)

Step 1: State Hypotheses

- H_0 : Product preference is independent of gender
- H_1 : Product preference depends on gender

Step 2: Calculate Expected Frequencies

Formula: $E = \text{Total rows} * \text{Total columns} / \text{Total sum}$

- $A(\text{Electronics, Male}) = (100)(150)/300 = 50$
- $B(\text{Electronics, Female}) = (100)(150)/300 = 50$
- $C(\text{Clothing, Male}) = (120)(150)/300 = 60$
- $D(\text{Clothing, Female}) = (120)(150)/300 = 60$
- $E(\text{Home Appliances, Male}) = (80)(150)/300 = 40$
- $F(\text{Home Appliances, Female}) = (80)(150)/300 = 40$

Step 3: Calculate Chi-square value

Formula: $(O - E)^2/E$

Category	O	E	O - E	$(O - E)^2$	$(O - E)^2/E$
A	60	50	10	100	2
B	40	50	-10	100	2
C	50	60	-10	100	1.67
D	70	60	10	100	1.67
E	40	40	0	0	0
F	40	40	0	0	0

$$X^2 \text{ calculated} = 2.0 + 2.0 + 1.67 + 1.67 + 0 + 0 = 7.34$$

Step 4: Degrees of Freedom

$$df = (r-1)(c-1) = (3-1)(2-1) = 2$$

Step 5: Critical Value & Decision

For $df = 2$ and $\alpha = 0.05$, critical χ^2 value = 5.991

Since $7.34 > 5.991$, we reject H_0

Conclusion:

At 5% level of significance, product preference depends on gender.