

# Faculty of Management Studies

## End Semester Examination May 2025

### MS5CO26 Business Research Methods

<b>Programme</b>	:	MBA	<b>Branch/Specialisation</b>	:	-
<b>Duration</b>	:	3 hours	<b>Maximum Marks</b>	:	60

**Note:** All questions are compulsory. Internal choices, if any, are indicated. Assume suitable data if necessary.  
 Notations and symbols have their usual meaning.

#### Section 1 (Answer all question(s))

**Marks CO BL**  
 1 1 3

**Q1.** Which type of research focuses on solving practical business problems?

<b>Rubric</b>	<b>Marks</b>
Applied research	1

- Basic research       Applied research  
 Exploratory research       Descriptive research

**Q2.** Which of the following is not a characteristic of good research?

1 1 4

<b>Rubric</b>	<b>Marks</b>
Based on subjective opinions	1

- Systematic and logical       Based on subjective opinions  
 Empirical and replicable       Objective and reliable

**Q3.** What is a Type I error in hypothesis testing?

1 3 2

<b>Rubric</b>	<b>Marks</b>
Rejecting a true null hypothesis	1

- Accepting a false null hypothesis       Rejecting a true null hypothesis  
 Accepting a true alternative hypothesis       Rejecting a false alternative hypothesis

**Q4.** Which of the following best describes a dependent variable?

1 3 2

<b>Rubric</b>	<b>Marks</b>
A variable that is affected by changes in the independent variable	1

- A variable that influences other variables in the study       A variable that remains unchanged throughout the study  
 A variable that is affected by changes in the independent variable       A variable that is not included in the research

**Q5.** Which of the following measurement scales categorizes data without a specific order?

1 4 2

<b>Rubric</b>	<b>Marks</b>
Nominal scale	1

- Nominal scale       Ordinal scale  
 Interval scale       Ratio scale

**Q6.** Which of the following is an example of a non-sampling error?

1 4 4

Rubric	Marks
Incorrect data entry	1

- Selecting a biased sample  
 Using an improper sampling method
- Incorrect data entry  
 Not selecting enough respondents

**Q7.** The Chi-square test is primarily used to analyze:

1 5 3

Rubric	Marks
The association between categorical variables	1

- Differences in means between two groups  
 The variance of a single dataset
- The association between categorical variables  
 The normality of a dataset

**Q8.** The independent samples t-test is used to compare:

1 5 3

Rubric	Marks
The means of two different groups	1

- A single sample's mean to a known population mean  
 The means of three or more groups
- The means of two different groups  
 The relationship between two categorical variables

**Q9.** Which of the following is not a type of research report?

1 7 4

Rubric	Marks
Fictional report	1

Technical report  
 Fictional report

Popular report  
 Interim report

**Q10.** Which of the following is not a characteristic of an effective research report?

1 7 4

Rubric	Marks
Excessive jargon and complexity	1

Clarity and coherence  
 Excessive jargon and complexity

Logical structure  
 Accurate referencing

### Section 2 (Answer all question(s))

Marks CO BL

**Q11.** Why is research important in decision-making?

2 1 2

Rubric	Marks
Importance of research	2

**Q12.** List three key objectives of research.

2 1 2

Rubric	Marks
Three objectives of research	2

**Q13. (a)** Explain any four types of research with examples.

4 1 4

Rubric	Marks
Five types of research with example	4

(OR)

**(b)** Discuss any four limitations of research.

Rubric	Marks
Five limitations of research	4

### **Section 3 (Answer all question(s))**

**Marks CO BL**

2 2 2

**Q14.** What is the purpose of a literature review in research?

Rubric	Marks
Purpose of literature review	2

**Q15. (a)** Explain the process of hypothesis testing. Differentiate between Type I and Type II errors with examples.

Rubric	Marks
Process of Hypothesis testing	3
Difference between Type I and Type II errors with examples	3

**(OR)**

- (b)** A researcher is testing the effectiveness of a new marketing strategy. A sample of 50 customers is surveyed, and their average purchase amount is found to be ₹2,500 with a standard deviation of ₹400. The company's previous average purchase amount (population mean) was ₹2,400. Perform a one-sample t-test at a 5% significance level to determine if the new marketing strategy has significantly increased the average purchase amount.

Rubric	Marks

## Define Hypotheses

- Null Hypothesis ( $H_0$ ): The new marketing strategy has not significantly increased the average purchase amount.

$H_0: \mu = 2400$

- Alternative Hypothesis ( $H_1$ ): The new marketing strategy has significantly increased the average purchase amount.

$H_1: \mu > 2400$

## Step 2: Given Data

- Sample size:  $n = 50$
- Sample mean:  $\bar{x} = 2500$
- Population mean:  $\mu_0 = 2400$
- Sample standard deviation:  $s = 400$
- Significance level:  $\alpha = 0.05$

## Step 3: Compute the t-Statistic

The formula for the one-sample t-test is:

$$t = \frac{\bar{x} - \mu_0}{s/\sqrt{n}}$$

Substituting the values:

$$t = \frac{2500 - 2400}{400/\sqrt{50}} = 1.768$$

Let's calculate this.

## Step 4: Compare t-Statistic with Critical Value

- Calculated t-statistic = 1.768
- Critical t-value (at 5% significance level,  $df=49$ ) = 1.677

Since t-statistic (1.768) > t-critical (1.677), we reject the null hypothesis,  $H_0$

## Step 5: Compute p-Value

- Computed p-value = 0.0417
- Since p-value (0.0417) <  $\alpha$  (0.05), we reject  $H_0$ .

Conclusion:

At a 5% significance level, the test provides enough evidence to conclude that the new marketing strategy has significantly increased the average purchase amount.

1Marks – Hypothesis Formulation

1Marks – Degree of Freedom

3 Marks - Calculation

1Marks – Conclusion      Total 6 Marks

Marks CO BL

3 4 2

## Section 4 (Answer all question(s))

Q16. What is the difference between sampling errors and non-sampling errors? Provide an example of each.

Rubric	Marks
Difference	2
Example	1

**Q17. (a)** Describe various sampling techniques and explain their advantages and limitations.

5 4 2

Rubric	Marks
Various sampling techniques	3
Advantages	1
Limitations	1

**(OR)**

- (b)** A researcher wants to estimate the average monthly expenditure on digital banking services among university students. A pilot study with a sample of 50 students found a standard deviation of ₹200. If the researcher wants to estimate the population mean with a 95% confidence level and a margin of error of ₹50, what should be the minimum sample size required?

Rubric	Marks
<p>Step 1: Given Data          Standard deviation (<math>\sigma</math>) = ₹200</p> <p>Margin of error (E) = ₹50</p> <p>Confidence level = 95%</p> <p>Critical z-value for 95% confidence (<math>Z_{\alpha/2}</math>) = 1.96</p> <p>Step 2: Solve for <math>n = (Z_{\alpha/2} \cdot \sigma / E)^2</math></p> <p>Substituting the values:</p> $n = (1.96 \times 200 / 50)^2$ <p>Conclusion:          The minimum sample size required to estimate the population mean with a 95% confidence level and a margin of error of ₹50 is 61 students</p> <p>Standard deviation, margin error, confidence level - 1 mark          z-value - 1 mark          Calculation - 3 marks          Conclusion - 2 marks Total - 7 marks</p>	5

### Section 5 (Answer all question(s))

**Q18.** Differentiate between parametric and non-parametric tests with examples.

**Marks CO BL**

3 5 4

Rubric	Marks
Differentiate with examples	3

**Q19. (a)** A researcher wants to compare the average test scores of two independent groups of students (Group A & Group B). Explain how an Independent Samples t-test is conducted and interpreted.

Rubric	Marks
Steps to conduct Independent Samples t-test and interpretation (As per explanation)	5

**(OR)**

- (b)** A company wants to test whether the mean transaction time for its online banking system is significantly different from 5 minutes. A sample of 25 transactions has a mean transaction time of 5.4 minutes with a standard deviation of 1.2 minutes. Using a one-sample t-test at a 5% significance level, determine whether there is a significant difference in transaction time.

Rubric	Marks

Step 1: Define Hypotheses

Null Hypothesis:

The mean transaction time is not significantly different from 5 minutes.

$$H_0: \mu = 5$$

Alternate Hypothesis:

The mean transaction time is significantly different from 5 minutes.

$$H_1: \mu \neq 5$$

Step 2: Given Data

Sample size: n=25

Sample mean:

$$\bar{x} = 5.4 \text{ minutes}$$

Population mean:  $\mu_0 = 5$  minutes

Sample standard deviation:  $s = 1.2$  minutes

Significance level:  $\alpha = 0.05$

### Step 3: Compute the t-Statistic

The formula for the **one-sample t-test** is:

Substituting the values:

### Step 4: Compare t-Statistic with Critical Value

- Calculated t-statistic = **1.667**
- Critical t-value (for  $\alpha = 0.05$ , two-tailed, df=24) = **2.064**

Since t-statistic (1.667) < t-critical (2.064), we **fail to reject  $H_0$**

### Step 5: Compute p-Value

- Computed p-value = **0.109**
- Since p-value (0.109) >  $\alpha$  (0.05), we fail to reject .

### Conclusion:

At a **5% significance level**, there is **not enough evidence** to conclude that the mean transaction time is significantly different from 5 minutes.

1Marks – Hypothesis Formulation

1Marks – Compute the t-Statistic

1Marks - Compare t-Statistic with Critical Value

1 marks- Compute p-value

1Marks – Conclusion      Total 5 Marks

Marks CO BL

3 7 4

### Section 6 (Answer all question(s))

**Q20.** What are the common mistakes to avoid while writing a research report?

Rubric	Marks
Common mistakes to avoid while writing a research report (As per explanation)	3

**Q21. (a)** Why is report writing important in research? Explain with suitable examples.

5 7 2

Rubric	Marks
Importance of report writing	3
Examples	2

(OR)

**(b)** What is a research synopsis? Explain its structure and purpose in academic research.

Rubric	Marks
Definition research synopsis	1
Structure of synopsis	2
purpose in academic research	2

### Section 7 (Answer all question(s))

**Q22. Consumer Preferences in Online Retail—A Business Research Approach**

Marks CO BL

10 4 3

E-commerce has transformed the retail industry, providing consumers with an extensive range of choices and convenience. However, understanding consumer preferences remains a significant challenge for online retailers. XYZ Retail, an emerging e-commerce company, sought to investigate the key factors influencing consumer purchasing behavior on its platform.

Despite significantly increasing website traffic, XYZ Retail's customer retention rates declined. The company wanted to identify the primary factors influencing repeat purchases and customer loyalty.

XYZ Retail employed a quantitative research method involving an online survey distributed to 1,500 customers. The survey included structured questions on pricing, product variety, user experience, trust, and customer service. Additionally, secondary data analysis was conducted using past sales data and customer feedback reports to identify trends in purchasing behavior.

The research findings indicated that price sensitivity played a crucial role in customer purchasing behavior, with 60% of respondents considering price discounts as the most significant factor influencing their purchases. Website user experience was another critical factor; customers preferred easy navigation and quick loading times. Trust and security also emerged as essential concerns, with 75% of customers emphasizing that secure payment options increased their confidence in making repeat purchases. Additionally, customer service was a determining factor in loyalty, as 80% of respondents highlighted that a quick and efficient response from customer support influenced their decision to continue shopping with XYZ Retail.

The study revealed that improving user experience, offering competitive pricing, ensuring secure payment gateways, and enhancing customer support services would help XYZ Retail boost customer retention. Based on the findings, the company introduced personalized discount offers, improved website functionality, and enhanced customer service responsiveness. After implementing these strategies, XYZ Retail observed a 25% increase in repeat purchases over the next six months.

#### Questions:

- (i) How can XYZ Retail enhance its customer retention strategies using qualitative research methods?
- (ii) What additional data sources can be used to complement the findings from surveys and sales reports?

Rubric	Marks
1. As per explanation	5
2. As per explanation	5

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