

# MSC-CA Semester 1 - Research Methodology Internal Assessment

## Complete Question Bank with Answer Keys

**\*\*Course:\*\*** Master of Science in Computer Applications  
**\*\*Semester:\*\*** 1 (July 2025)  
**\*\*Subject:\*\*** Research Methodology & Introduction to Research (RM-IA)  
**\*\*Total Questions:\*\*** 30  
**\*\*Date:\*\*** December 11, 2025

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## Questions with Answers

### ### Question 1

**\*\*What is the first step in the research process?\*\***

- Defining Problem or Formulating a research question ✓ **\*\*CORRECT\*\***
- Literature review
- Data collection
- Data analysis

**\*\*Explanation:\*\*** The foundation of any research begins with identifying and clearly defining the problem or research question. This guides all subsequent research activities.

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### ### Question 2

**\*\*What type of research design involves the random assignment of participants to different conditions and the manipulation of one or more independent variables?\*\***

- Descriptive research
- Experimental research ✓ **\*\*CORRECT\*\***
- Correlational research
- Qualitative research

**\*\*Explanation:\*\*** Experimental research is characterized by controlled manipulation of variables and random assignment of participants to ensure validity and establish cause-and-effect relationships.

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### ### Question 3

**\*\*Which type of research is primarily exploratory and is used to gain an understanding of underlying reasons, opinions, and motivations?\*\***

- Descriptive research
- Correlational research
- Experimental research
- Qualitative research ✓ **\*\*CORRECT\*\***

**\*\*Explanation:\*\*** Qualitative research focuses on exploring underlying motivations, opinions, and reasons—ideal for understanding the "why" behind phenomena rather than quantifying them.

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### ### Question 4

**\*\*After collecting data, the next step in the research process is usually:\*\***

- Formulating a hypothesis
- Data analysis ✓ **\*\*CORRECT\*\***

- Defining the problem
- Conducting a literature review

**\*\*Explanation:\*\*** Once data is collected, it must be analyzed to extract meaningful patterns and insights. Data analysis transforms raw data into useful information.

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#### ### Question 5

**\*\*What is the primary purpose of a literature review?\*\***

- Summarize and critically evaluate previous research ✓ **\*\*CORRECT\*\***
- List all studies on a topic without evaluation
- Replace the need for conducting your own research
- Limit the scope of your research question

**\*\*Explanation:\*\*** A literature review synthesizes existing knowledge, identifies gaps, and critically evaluates previous findings to provide context for new research.

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#### ### Question 6

**\*\*Which of the following is NOT a recognized type of research?\*\***

- Basic research
- Applied research
- Quantitative research
- Literary research ✓ **\*\*CORRECT\*\***

**\*\*Explanation:\*\*** While "literary research" involves studying literature as a subject, it's not classified as a formal research type in research methodology. The recognized types are basic, applied, quantitative, and qualitative.

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#### ### Question 7

**\*\*What type of research examines the relationship between two variables without manipulating them?\*\***

- Experimental research
- Descriptive research
- Correlational research ✓ **\*\*CORRECT\*\***
- Qualitative research

**\*\*Explanation:\*\*** Correlational research identifies relationships and associations between variables without introducing any experimental manipulation or control.

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#### ### Question 8

**\*\*The process of grouping variables in a literature review can help in:\*\***

- Refining the research questions or hypotheses ✓ **\*\*CORRECT\*\***
- Making the review more subjective
- Avoiding critical analysis of the literature
- Limiting the scope to only one variable

**\*\*Explanation:\*\*** Grouping variables helps identify patterns and themes across studies, leading to refined research questions and clearer hypotheses.

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#### ### Question 9

**\*\*After collecting data, the next step in the research process is usually:\*\***

- Formulating a hypothesis
- Data analysis ✓ **\*\*CORRECT\*\***
- Defining the problem

- Conducting a literature review

**\*\*Explanation:\*\*** Data analysis is the logical next step after collection, where researchers examine and interpret the data to draw conclusions.

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#### ### Question 10

**\*\*Which characteristic is typical of quantitative research?\*\***

- Focus on personal experiences
- Uses numerical data and statistical analysis ✓ **\*\*CORRECT\*\***
- Emphasizes understanding context and meanings
- Relies on observational methods without measurement

**\*\*Explanation:\*\*** Quantitative research is defined by its use of numerical data, measurements, and statistical analysis to test hypotheses and establish relationships.

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#### ### Question 11

**\*\*What is the primary purpose of grouping variables in a literature review?\*\***

- To simplify the writing process
- To identify patterns and themes across studies ✓ **\*\*CORRECT\*\***
- To reduce the number of sources reviewed
- To make the review more objective

**\*\*Explanation:\*\*** Grouping variables reveals patterns, themes, and gaps across literature, facilitating synthesis and comparison of findings.

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#### ### Question 12

**\*\*Which of the following is a key difference between a systematic literature review and a traditional review?\*\***

- Systematic reviews use rigorous and replicable methodology ✓ **\*\*CORRECT\*\***
- Systematic reviews are faster to complete
- Systematic reviews focus only on qualitative data
- Traditional reviews are more objective

**\*\*Explanation:\*\*** Systematic reviews follow explicit, predetermined protocols and are exhaustive in scope, whereas traditional reviews are more narrative and subjective.

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#### ### Question 13

**\*\*Which type of literature review would typically require the registration of a review protocol?\*\***

- Traditional literature review
- Systematic literature review ✓ **\*\*CORRECT\*\***
- Critical literature review
- None of the above

**\*\*Explanation:\*\*** Systematic literature reviews require pre-registration of the protocol (PROSPERO, OSF) to ensure transparency and reduce bias.

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#### ### Question 14

**\*\*A traditional literature review typically:\*\***

- Uses explicit inclusion/exclusion criteria
- Often lacks explicit inclusion/exclusion criteria ✓ **\*\*CORRECT\*\***
- Follows a strict pre-registered protocol
- Requires meta-analysis

**\*\*Explanation:\*\*** Traditional reviews are narrative syntheses without pre-specified criteria, unlike systematic reviews which have explicit protocols.

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#### ### Question 15

**\*\*In which type of literature review is the subjective interpretation of the reviewer most apparent?\*\***

- Systematic literature review
- Traditional literature review ✓ **\*\*CORRECT\*\***
- Critical literature review
- Meta-analysis

**\*\*Explanation:\*\*** Traditional literature reviews allow for more subjective selection and interpretation compared to systematic reviews, which use standardized procedures.

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#### ### Question 16

**\*\*What is primary data?\*\***

- Data that is collected by someone else and used in your research
- Data collected firsthand by the researcher for a specific purpose ✓ **\*\*CORRECT\*\***
- Data that is found in books and articles
- Data that is outdated and no longer useful

**\*\*Explanation:\*\*** Primary data is original data collected directly by the researcher for their specific research objectives, ensuring relevance and control.

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#### ### Question 17

**\*\*The final step in the research process, where findings are communicated to others, is called:\*\***

- Data collection
- Data analysis
- Literature review
- Reporting and publishing results ✓ **\*\*CORRECT\*\***

**\*\*Explanation:\*\*** Reporting and publishing results complete the research cycle by sharing findings with the academic and professional community.

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#### ### Question 18

**\*\*Which approach is typically emphasized in a critical literature review?\*\***

- A descriptive summary of studies
- An unbiased and rigorous search strategy
- A critical evaluation and synthesis of the literature ✓ **\*\*CORRECT\*\***
- A focus on providing a comprehensive list of all studies

**\*\*Explanation:\*\*** Critical literature reviews emphasize critical evaluation and synthesis of findings, moving beyond mere description to interpret and evaluate quality.

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#### ### Question 19

**\*\*What type of research focuses on understanding fundamental aspects of phenomena without a specific application in mind?\*\***

- Basic research ✓ **\*\*CORRECT\*\***
- Applied research
- Descriptive research
- Exploratory research

**\*\*Explanation:\*\*** Basic research aims to advance fundamental knowledge and understanding without immediate practical application, emphasizing theoretical understanding.

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#### ### Question 20

**\*\*Which of the following is common to both systematic and critical literature reviews?\*\***

- They both involve a rigorous and systematic search of the literature ✓ **\*\*CORRECT\*\***
- They both avoid critical evaluation of the studies
- They both aim to provide a narrative summary of the literature
- They both allow for subjective interpretation without strict criteria

**\*\*Explanation:\*\*** Both systematic and critical reviews employ rigorous methodologies, though systematic reviews are more standardized while critical reviews emphasize evaluation.

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#### ### Question 21

**\*\*Which of the following is a key feature of a systematic literature review?\*\***

- It aims to offer a general overview of the literature
- It includes an exhaustive and comprehensive search strategy ✓ **\*\*CORRECT\*\***
- It allows for selective inclusion of studies based on the author's preference
- It focuses on presenting qualitative data only

**\*\*Explanation:\*\*** Systematic reviews are characterized by comprehensive, exhaustive search strategies with explicit inclusion/exclusion criteria to minimize bias.

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#### ### Question 22

**\*\*In which phase of the research process do researchers develop instruments or tools for data collection?\*\***

- Research design ✓ **\*\*CORRECT\*\***
- Literature review
- Formulating the problem
- Data analysis

**\*\*Explanation:\*\*** During the research design phase, researchers develop questionnaires, interview guides, observation protocols, or other measurement instruments.

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#### ### Question 23

**\*\*In which type of literature review is the subjective interpretation of the reviewer most apparent?\*\***

- Traditional literature review ✓ **\*\*CORRECT\*\***
- Systematic literature review
- Critical literature review
- Meta-analysis

**\*\*Explanation:\*\*** Traditional reviews rely heavily on the reviewer's subjective judgment in selecting and interpreting sources, unlike systematic approaches.

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#### ### Question 24

**\*\*Which type of research is designed to systematically describe a situation, problem, phenomenon, or population?\*\***

- Exploratory research
- Descriptive research ✓ **\*\*CORRECT\*\***
- Experimental research
- Longitudinal research

**\*\*Explanation:\*\*** Descriptive research systematically documents characteristics, conditions, and phenomena, providing detailed descriptions without manipulation.

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#### ### Question 25

**\*\*Which type of literature review is most likely to include a meta-analysis?\*\***

- Traditional literature review
- Systematic literature review ✓ **\*\*CORRECT\*\***
- Critical literature review
- None of the above

**\*\*Explanation:\*\*** Systematic literature reviews often include meta-analysis (quantitative synthesis of results) when data from studies are comparable.

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#### ### Question 26

**\*\*Empirical research is primarily based on:\*\***

- Hypothesis
- Theory
- Observation and experimentation ✓ **\*\*CORRECT\*\***
- Literature review

**\*\*Explanation:\*\*** Empirical research relies on direct observation, experimentation, and actual data collection rather than theory or literature alone.

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#### ### Question 27

**\*\*Which type of research establishes a cause-and-effect relationship between variables?\*\***

- Correlational research
- Descriptive research
- Experimental research ✓ **\*\*CORRECT\*\***
- Exploratory research

**\*\*Explanation:\*\*** Only experimental research, with controlled manipulation of variables and random assignment, can establish true cause-and-effect relationships.

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#### ### Question 28

**\*\*Which type of research aims to solve specific, practical problems?\*\***

- Basic research
- Applied research ✓ **\*\*CORRECT\*\***
- Quantitative research
- Qualitative research

**\*\*Explanation:\*\*** Applied research targets practical problems and aims for solutions with immediate application value in real-world contexts.

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#### ### Question 29

**\*\*Which type of research establishes a cause-and-effect relationship between variables?\*\***

- Correlational research
- Descriptive research
- Experimental research ✓ **\*\*CORRECT\*\***
- Exploratory research

**\*\*Explanation:\*\*** Experimental research, through controlled variable manipulation and random assignment, can establish cause-and-effect relationships.

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### ### Question 30

**\*\*What is the primary focus of a traditional literature review?\*\***

- To provide a comprehensive summary of the available literature on a specific topic ✓ **\*\*CORRECT\*\***
- To critically evaluate and synthesize existing research on a topic
- To systematically search for and appraise research evidence
- To conduct a meta-analysis of quantitative studies

**\*\*Explanation:\*\*** Traditional literature reviews aim to provide a narrative summary of existing literature, highlighting key findings and gaps in knowledge.

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## Summary of Answer Distribution

| Research Type | Count | Key Characteristics |

|---|---|---|

| **\*\*Experimental Research\*\*** | 4 | Random assignment, variable manipulation, cause-and-effect |

| **\*\*Qualitative Research\*\*** | 2 | Understanding reasons, opinions, motivations, context |

| **\*\*Descriptive Research\*\*** | 2 | Systematic description, documentation, observation |

| **\*\*Applied Research\*\*** | 2 | Practical problems, real-world solutions |

| **\*\*Literature Review Types\*\*** | 10 | Systematic, Traditional, Critical approaches |

| **\*\*Data & Methodology\*\*** | 5 | Primary data, data analysis, research design |

| **\*\*Research Process\*\*** | 3 | Steps and stages in research |

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## Key Concepts Reference

### ### Research Types by Purpose

- **\*\*Basic Research:\*\*** Fundamental understanding without specific application
- **\*\*Applied Research:\*\*** Solving practical, specific problems
- **\*\*Quantitative:\*\*** Numerical data, statistical analysis
- **\*\*Qualitative:\*\*** Meanings, experiences, context

### ### Research Designs

- **\*\*Experimental:\*\*** Manipulation + Random Assignment + Control
- **\*\*Correlational:\*\*** Relationship identification without manipulation
- **\*\*Descriptive:\*\*** Systematic observation and documentation
- **\*\*Exploratory:\*\*** Initial investigation, understanding

### ### Literature Review Approaches

| Aspect | Traditional | Systematic | Critical |

|---|---|---|

| **\*\*Protocol Registration\*\*** | No | Yes | No |

| **\*\*Search Strategy\*\*** | Narrative | Exhaustive | Rigorous |

| **\*\*Inclusion Criteria\*\*** | Implicit | Explicit | Implicit but justified |

| **\*\*Subjectivity\*\*** | High | Low | Moderate-High |

| **\*\*Meta-Analysis\*\*** | Rare | Common | Possible |

### ### Research Process Sequence

1. **\*\*Define Problem\*\*** → Formulate research question
2. **\*\*Literature Review\*\*** → Understand existing knowledge
3. **\*\*Hypothesis Formulation\*\*** → Predict relationships
4. **\*\*Research Design\*\*** → Plan methodology & develop instruments
5. **\*\*Data Collection\*\*** → Gather primary or secondary data
6. **\*\*Data Analysis\*\*** → Extract meaningful insights

7. **\*\*Reporting & Publishing\*\*** → Share findings with community

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## **Important Notes for MSC-CA Students**

This assessment tests foundational understanding of research methodology essential for:

- Thesis/project proposal development
- Literature review writing
- Research design selection
- Proper data collection and analysis
- Academic writing and publication

**\*\*Focus Areas for Exam Success:\*\***

- Distinguish between research types (basic vs. applied, quantitative vs. qualitative)
- Understand literature review methodologies
- Know research process sequence
- Recognize data types and collection methods
- Understand cause-and-effect vs. correlation vs. description

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**\*\*Document prepared:\*\*** December 11, 2025

**\*\*All 30 Questions Covered\*\***

**\*\*Ready for MSC-CA Exam Preparation\*\***