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(NAAC 'A+ Grade' Accredited, NBA Accredited (UG - CSE, ECE, ISE, EIE and EEE)
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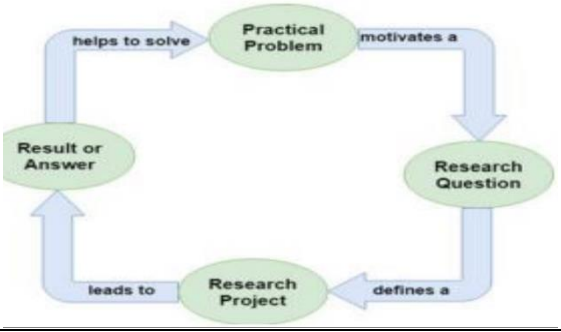
## Department Of CSE (Data science)/AI & DS

# CIE – TEST I

| Course: Research Methodology & Intellectual property Rights | Course Code: BRMK557 | Semester : V |
|---|---|---|
| Max. Marks : 50 | Date: 14/10/2024 | Faculty Name:<br>Prof.Navyashree KS<br>Prof.Rachitha<br>Prof. Pavithra J |

## Scheme and Solution

| Q.NO | Description | MARKS |
|---|---|---|
| 1 a. | Research is a systematic process of inquiry aimed at discovering, interpreting, and revising facts, theories, and applications. It involves the collection, analysis, and interpretation of data to answer specific questions or solve problems.<br>**Importance:**<br>Knowledge Advancement:<br>Problem-Solving<br>Policy Formulation<br>Economic Growth:<br>Education and Training<br>Social Impact<br>**Objectives of Research**<br>To Explore: Investigate new areas of interest and uncover unknown aspects of a subject.<br>To Describe: Provide detailed descriptions of phenomena or behaviors.<br>To Explain: Clarify relationships between variables and provide reasons for observed phenomena.<br>To Predict: Use existing knowledge to forecast future events or trends.<br>To Evaluate: Assess the effectiveness of processes, interventions, or policies.<br>To Develop: Create new products, methods, or theories that can be applied in practice. | 5 |
| 1b. | **Explanation the below points**<br>1. Fundamental Research:<br>2. Applied Research:<br>3. Developmental Research:<br>4. Experimental Research<br>5. Simulation Research:<br>6. Design Research<br>7. Interdisciplinary Research:<br>8. Sustainability Research | 5 |
| 2a. | **Explanation of the flow diagram**<br>  | 5 |
| 2b. | **Explanation of**<br>**Three Broad Categories of Developing and Accessing Knowledge in Research**<br>Research knowledge can be developed and accessed through three primary categories: | 5 |

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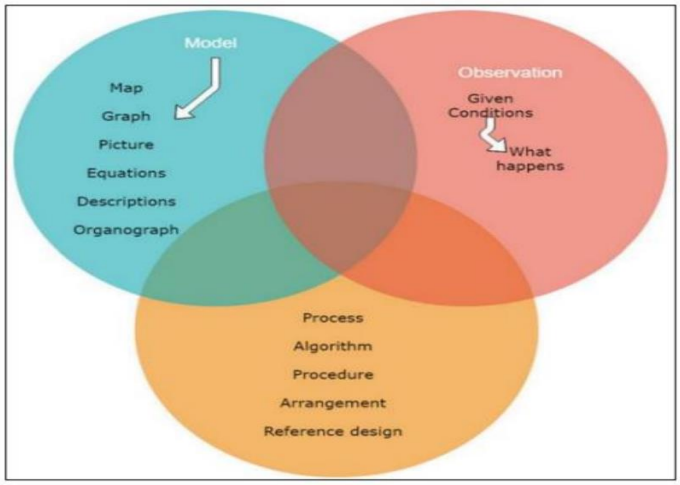
**1.Model**
**2.Observation**
**3.Process**

**Fig: The categories of knowledge in research**

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<tr><td>3a.</td><td>

| Aspect | Fundamental Research | Applied Research |
|---|---|---|
| **Definition** | Seeks to increase knowledge and understanding of basic principles without immediate practical application. | Aims to solve specific, practical problems using knowledge derived from fundamental research. |
| **Purpose** | To explore underlying theories and concepts. | To apply theories and principles to real-world problems. |
| **Focus** | Theoretical; emphasizes discovery and exploration. | Practical; emphasizes implementation and utility. |
| **Outcomes** | New theories, models, or concepts. | Solutions, products, or processes that address specific issues. |
| **Examples** | Research on the properties of materials at the atomic level (e.g., quantum mechanics). | Development of a new drug based on biochemical research. |

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<tr><td>3b.</td><td>

**Explanation about the points below**
**Factors Motivating Research**

- Curiosity and Knowledge Seeking:
- Problem Solving:
- Innovation and Advancement:
- Economic Incentives:
- Professional Development:
- Societal Impact:
- Interdisciplinary Collaboration:

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<tr><td>4a.</td><td>

| Aspect | Descriptive Research | Analytical Research |
|---|---|---|
| **Definition** | Focuses on providing a detailed account or description of a phenomenon or situation without manipulating variables. | Involves analyzing and interpreting data to understand relationships, causations, and underlying principles. |

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| | | | | |
|---|---|---|---|---|
| | **Purpose** | To observe and describe characteristics or behaviors. | To explain phenomena by analyzing data and identifying patterns or relationships. | |
| | **Data Collection** | Primarily uses surveys, observations, and case studies to gather data. | Utilizes statistical tools and models to analyze existing data or perform experiments. | |
| | **Outcome** | Provides a comprehensive overview or snapshot of a situation. | Produces insights into cause-and-effect relationships or predictions based on data analysis. | |
| | **Examples** | A survey assessing consumer preferences for a new product. | A study examining the impact of advertising on sales using regression analysis. | |

4b. **Key Features of Bibliographic Data** — 5

1. Author Information:Includes the names of authors or contributors, which helps identify the individuals or groups responsible for the work.
2. Title:The title of the work is essential for understanding the focus and content of the research or publication.
3. Publication Date:Indicates when the work was published, which is crucial for assessing the relevance and timeliness of the information.
4. Source:The name of the journal, book, or conference proceedings where the work was published, providing context and credibility to the research.
5. Volume and Issue Number:For journal articles, these details help locate the specific article within a publication series.
6. Page Numbers:Indicates the specific pages of the publication where the work appears, useful for citation and reference purposes.
7. DOI or URL:Digital Object Identifier (DOI) or a direct URL for accessing the work online, facilitating easy retrieval of the source.
8. Abstract:A brief summary of the research, outlining the objectives, methodology, and key findings, which provides a quick overview of the work.
9. Keywords:Terms that describe the main topics of the research, aiding in searchability and indexing.

5a. — 5

**(i) Fabrication**

**Definition**: Fabrication involves making up data or results and recording or reporting them as if they were real. This misconduct can occur at various stages of the research process, including during data collection, analysis, or presentation.

**Examples**:

- A researcher inventing experimental results to support a hypothesis that was not verified through actual experimentation.
- Reporting non-existent surveys or experiments in a research paper, thus misrepresenting the research findings.

**ii) Plagiarism**

**Definition**: Plagiarism is the act of using someone else's work, ideas, or intellectual property without proper acknowledgment or citation, presenting them as one's own. This includes copying text, images, or data without permission.

**Examples**:

- Copying paragraphs from a published paper into one's own work without citation.
- Submitting another person's thesis or dissertation as one's own original work.

5b. **Reading Mathematics and Algorithms in the Research Process** — 5

Reading mathematics and algorithms is integral to the research process, particularly in fields that rely heavily on quantitative analysis, modelling, and computational techniques. Here's how they relate:

**Explanation of Understanding Concepts**:

**Data Analysis**:

**Modelling and Simulation**:

| | | |
|---|---|---|
| | **Algorithm Development**:<br>**Critical Evaluation**:<br>**Communication**: | |
| 6a | **Explanation of the below points**<br>1. Criteria for Authorship:<br>2. Credit and Contribution:<br>3. Ghost Authorship:<br>4. Honorary Authorship:<br>5. Order of Authors:<br>6. Disclosure of Conflicts of Interest:<br>7. Responsibility for Content: | 5 |
| 6b | **Explanation of the below points**<br>1. Establishing Context and Background<br>2. Refining Research Questions<br>3. Methodological Insights<br>4. Building a Theoretical Framework<br>5. Supporting Arguments and Findings<br>6. Identifying Potential Collaborators and Funding Opportunities<br>7. Facilitating Technical Reading Skills<br>**8.** Keeping Up with Advances | 5 |
| 7a | Ethics refers to a set of moral principles that govern a person's or group's behavior. It involves distinguishing between right and wrong, making decisions that align with moral values, and adhering to standards of conduct in various fields, including professional practices. In essence, ethics guides individuals in making choices that reflect integrity, fairness, and respect for others.<br>**Explanation of the below points**<br>• Integrity and Trust:<br>• Accountability:<br>• Safety and Well-being:<br>• Quality of Research:<br>• Equitable Practices:<br>• Compliance with Regulations:<br>• Social Responsibility:<br>• Interdisciplinary Collaboration:<br>• Enhancing Reputation: | 5 |
| 7b | **Explanation of the below points**<br>**1.** Substantial Contribution<br>**2.** Transparency and Communication<br>**3.** Order of Authors<br>**4.** Ghost and Honorary Authorship<br>**5.** Accountability and Responsibility<br>**6.** Conflict of Interest Disclosure | 5 |
| 8a | **Explanation of the below points**<br>1.Question the Problem Addressed<br>2.Assess Limitations<br>3.Evaluate Assumptions<br>4.Analyze Logical Flow<br>5.Use Judgment and Boldness<br>6.Be Flexible in Judgments<br>7.Evaluate Data Quality<br>8.Identify Mistakes and Flaws | 5 |

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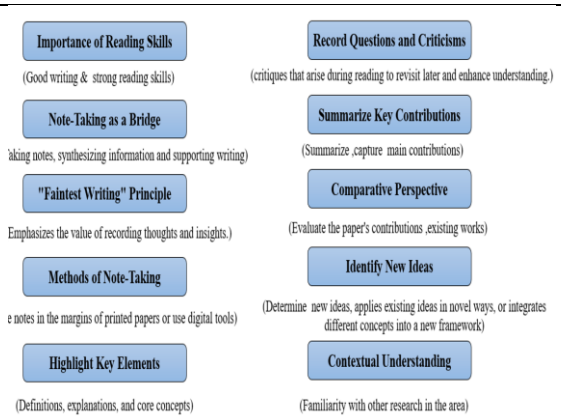
|---|---|---|
| 8b |  | 5 |
| 9a | **Explanation of the below points**<br>• New Knowledge<br>• Existing Knowledge<br>• Interpretation<br>• Context<br>• Significance<br>• Problem Identification<br>• Originality | 5 |
| 9b | **Explanation of the below points**<br>1. Analyzing relevant information -Understanding hypothesis,models,compare and contrast,make connections.<br>2. Purpose -Identify the issues , limitations , innovations,recommendations.<br>**3.** Criteria to evaluate information-authorship,authenticity,Accuracy,coverage,objectivity. | 5 |
| 10a | • Identify the Component: Confirm the name, part number, and manufacturer.<br>• Table of Contents: Use it for quick navigation to relevant sections.<br>• Overview: Read the introduction for a summary of features and applications.<br>• Specifications: Focus on key specs like voltage, current, and power ratings.<br>• Electrical Characteristics: Check performance metrics (e.g., input/output impedance, gain).<br>• Application Circuits: Review example circuits for practical usage insights.<br>• Mechanical Data: Look at dimensions, packaging types, and pin configurations.<br>• Operating Conditions: Note optimal voltage, current, and temperature ranges.<br>• Reliability and Safety: Review ratings, environmental info, and safety standards.<br>• Additional Information: Explore troubleshooting, FAQs, and resources for insights | 5 |
| 10b | • Establishing Context: Provides background for the research topic.<br>• Identifying Gaps: Highlights areas lacking in existing research.<br>• Refining Research Questions: Aids in formulating clear research questions or hypotheses.<br>• Understanding Methodologies: Reviews research methods used in previous studies.<br>• Evaluating Existing Research: Assesses strengths and weaknesses of prior studies.<br>• Supporting Theoretical Frameworks: Builds or refines theoretical frameworks.<br>• Informing Data Collection: Offers insights into effective data collection techniques.<br>• Facilitating Scholarly Dialogue: Engages with ongoing academic conversations.<br>• Establishing Credibility: Demonstrates knowledge of the field. | 5 |

**Faculty Incharge** **Scrutinizer Signature** **HOD Signature**