RESEARCH METHODOLOGY

PRACTICE QUESTIONS

(COMPS 3218)

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DEPARTMENT OF COMPUTER SCIENCE AND INFORMATION TECHNOLOGY

Ing. Dr. Maurice Sesay & Dr. Hamza Bangurah

BSC 3 YEAR – 2 SEM

Based on the comprehensive lecture notes on Research Methodology (COMPS 3218), here are key research method questions organized by unit and topic for assessments, self-study, or discussion:

Unit I: Introduction & Research Foundations

1. **Define research methodology** and distinguish it from *research methods*. Provide examples.
2. Explain the **characteristics of a good research problem statement**. Why is precise problem formulation critical?
3. Compare **descriptive vs. analytical research**. Give a real-world example for each.

Unit II: Data Collection & Analysis

4. Differentiate between **primary and secondary data**. List three sources for each.
5. Compare **questionnaires and schedules** as data collection tools. Discuss advantages/disadvantages of each.
6. Design a **Likert scale questionnaire** (5 questions) to measure student satisfaction with online learning.

Unit III: Research Design & Hypothesis Testing

7. What is **research design**? List its key components and objectives.
8. Compare **exploratory, descriptive, and hypothesis-testing research designs**. Provide use cases for each.
9. Define **internal validity** and **external validity**. How can researchers enhance both in experimental designs?

Unit IV: Test Procedures & Reporting

10. Draft the **structure of a research report** (from title page to appendices). What key elements should the *Discussion* section include?
11. Why is **plagiarism** a critical ethical issue in research? How can researchers avoid it?

Application Questions

12. **Case Study**: A researcher wants to study smartphone addiction among teenagers. Propose a **mixed-methods design** (quantitative + qualitative), including:

- Sampling strategy
- Data collection tools
- Ethical safeguards

13. **Critique**: A study uses a convenience sample to generalize about workplace productivity. Identify **three methodological flaws** and suggest improvements.
14. **Design an experiment** to test the effect of caffeine on memory. Include:

- Hypothesis
- Variables (IV/DV)
- Control group strategy
- Measurement scales