



SCHOOL OF COMPUTING AND ENGINEERING SCIENCES (SCES)
BACHELOR OF BUSINESS INFORMATION TECHNOLOGY
BACHELOR OF COMPUTER NETWORKS AND CYBER SECURITY
END OF SEMESTER EXAMINATION
CNS 3203/ BBIT 3203 RESEARCH METHODOLOGY AND TECHNICAL WRITING

DATE: 11th December 2024

Time: 08:00-10:00 Hours

Instructions

1. This examination consists of **FIVE** questions.
2. Answer **Question ONE (COMPULSORY)** and any other **TWO** questions.

Question 1

- a. Evaluate the criteria that determine the significance of a research problem. **(3 Marks)**
- b. Using a specific research topic, explain how you would demonstrate the problem's importance to potential stakeholders. **(5 Marks)**
- c. Compare and contrast various research methods, providing specific examples of each, additionally evaluate the strengths and limitations of each method. **(6 Marks)**
- d. Imagine you are conducting a study to investigate the impact of social media usage on academic performance among university students in your country. You have access to the student databases of three major universities: University A, University B, and University C. The total number of students is 15,000 across all universities, and you need to collect data from a sample of 500 students.
 - i. Describe and justify the sampling technique(s) you would use to select your sample from the total population of students, considering that the population consists of students from multiple universities. **(5 Marks)**
 - ii. Explain the steps you would follow to implement the sampling method you selected. **(6Marks)**
 - iii. Discuss one advantage and one limitation of the sampling technique you chose in relation to your research. **(2 Mark)**

- e. Discuss the Hawthorne effect as experienced in observation as a data collection method **(3Marks)**

Question 2

- a. Differentiate
- i. Pilot study vs Pre-testing **(2 Marks)**
 - ii. Participatory observations vs non-participatory observations **(2 Marks)**
 - iii. Internal validity vs External validity **(2 Marks)**
- b. How would you apply the process of disseminating research findings in an academic context, **and why** is it important for advancing knowledge in your field? **(3marks)**
- c. Discuss the importance of bibliography management tools in academic writing, particularly in the context of thesis and project development. **(3 Marks)**
- d. Provide a detailed, step-by-step guide on how to add and format citations and references using either Mendeley or Zotero. **(8 Marks)**

Question 3

- a. In the context of conducting a literature review for your research project:
- i) What sources do you typically use to gather information and academic references for your literature review? (Justify any five sources of Literature review) **(5 Marks)**
 - ii) Peer-reviewed papers are often recommended for academic research. Discuss why peer-reviewed articles are preferred over other sources of information when conducting a literature review. **(5 Marks)**
- b. You are a third-year student pursuing a Technological Degree. You are working on your research project, which involves collecting data from customers of an e-commerce platform to assess the impact of user interfaces on their shopping experience. You are eager to obtain valuable insights and complete your research successfully. However, as you proceed, you encounter several ethical dilemmas that prompt you to consider the principles of research ethics.
- c. Using the above context, Discuss the following terms as used in research ethics
- i. Informed Consent **(2 Marks)**
 - ii. Data Privacy and security **(4 Marks)**
 - iii. Anonymity and confidentiality **(4 Marks)**

Question 4

- a. i) Define what a predatory journal is in academic research. **(3 Marks)**
ii) Why should researchers be cautious when considering publications in predatory journals, and how can such journals impact the credibility and quality of academic work? **(4 Marks)**
- b. “It is never safe to take published statistics at their face value without knowing their meaning and limitations.” Expound this statement by enumerating and explaining the various points which you would consider before using any published data **(5 Marks)**

- c. As an IT professional, you are tasked with developing a health app that collects sensitive personal data from users, including health metrics and lifestyle information. Using the Belmont Report's three core principles (Respect for Persons, Beneficence, and Justice), answer the questions below
- i. Define each of the three Belmont principles. **(3 Marks)**
 - ii. Provide specific examples of how you would apply these principles in this context. **(5 Marks)**

Question 5

You have been tasked with conducting a research study to explore the factors influencing the adoption of digital payment systems among small businesses in your city. Your goal is to understand both the quantitative impact of these systems (e.g., increase in sales, customer satisfaction) and the qualitative experiences of the business owners (e.g., ease of use, barriers to adoption).

Based on this scenario, answer the following questions:

a. Mono-Method Approach

- i. If you were to adopt a mono-method approach, which single method would you choose (quantitative or qualitative), and why? **(3 marks)**
- ii. What limitations would you expect from relying solely on your chosen method in (i) for your research? **(2 marks)**

b. Mixed-Method Approach

- i. If you chose to use a mixed-method approach for this study, describe how you would combine both quantitative and qualitative methods. **(3 marks)**
- ii. What types of data would you use for each, and how would these data complement each other in answering your research question? **(4 marks)**

c. Multi-Method Approach

- i. Explain how a multi-method approach differs from a mixed-method approach in this context. **(2 marks)**
- ii. If you were to use a multi-method design, what different quantitative or qualitative techniques would you employ, and how would each method contribute to your understanding of the research problem? **(3 marks)**

d. Reflective question

Based on the research problem, which of the three approaches (mono, mixed, or multi-method) do you think would provide the most comprehensive understanding of the factors influencing digital payment system adoption, and why? **(3 marks)**