Part B: Structured Essay Questions (40 Marks)

Q1. A study was conducted at the Teaching Hospital, Jaffna, to investigate the prevalence of diabetes and its associated risk factors among patients attending the outpatient clinic over six months. Out of 500 patients, 120 were diagnosed with diabetes. The study also explored potential risk factors, including body mass index (BMI) and family history of diabetes, wile assessing blood sugar control through HbA1c levels.

1.1 Identify the population and sample in this study. (02 Marks)

Population: .....

Sample: .....

1.2 Calculate period prevalence of diabetes. (02 Marks)

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1.3 Identify the independent and dependent variables in this study. (02 Marks)

Independent variables :.....

Dependent variables:.....

1.4 Develop a general objective and specific objectives based on this scenario. (04 Marks)

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(Total 10 Marks)

Q2. A researcher recorded systolic blood pressure (SBP) readings of 10 patients diagnosed with hypertension, with values of 135, 140, 128, 160, 150, 138, 142, 155, 148, and 130 mmHg. The researcher aims to summarize the data and determine the most suitable statistical test to comparing SBP levels between male and female patients.

2.1. Calculate the range of the systolic blood pressure levels. (02 Marks)

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2.2 Calculate the median of the systolic pressure levels. (02 Marks)

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2.3 Identify the level of measurement for the SBP values. (01 Mark)

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2.4 Briefly describe the methods to be used to test the normality of a data set by giving suitable examples. (05 Marks)

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(Total 10 Marks)

Q3. The research process involves three key stages: planning phase, research phase and presentation phase.

3.1 List **three (03)** activities to be conducted on the planning phase of the research process. (03 Marks)

i. .....

ii. .....

iii. .....

3.2 State **two (02)** examples of secondary data collection methods. (02 Marks)

i. .....

ii. .....

3.3 Outline the difference between open-ended and closed-ended questions in a questionnaire? (02 Marks)

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3.4 Briefly describe **three (03)** important factors that you should consider when developing a questionnaire for data collection. (03 Marks)

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(Total 10 Marks)

Q4. A good research problem is well-defined, precise, and focused, targeting a crucial knowledge gap while remaining practical to investigate within the given time frame and resources.

4.1 List **four (04)** sources where you can find a research problem. (02 Marks)

i. .....

ii. .....

iii. .....

iv. .....

4.2 Mention **two (02)** basic methods of writing a research problem. (02 Marks)

i. .....

ii. .....

4.3 State the framework to be used to evaluate the quality of the research problem.(01 Mark)

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4.4 Briefly describe the components in the framework that you mentioned in 4.3. (05 Marks)

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(Total 10 Marks)

Part C: Essay Questions. (30 Marks)

Q1. Describe the process of the scientific method in problem-solving, using an appropriate example to illustrate each step. (15 Marks)

Q2. Discuss the fundamental ethical principles outlined in the following guidelines, which govern research involving human participants. (15 Marks)

a. The Nuremberg Code
b. The Declaration of Helsinki
c. The Belmont Report

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