All India Institute of Medical Sciences, Kalyani
M.Sc. Nursing First Year Examination, July 2025

Time: 3 Hrs.   <u>**Nursing Research & Statistics**</u>   **Marks: 75**

INSTRUCTIONS:

- Answer Section-A & Section-B in the separate Answer booklets.
- Draw diagram wherever necessary.

SECTION A
RESEARCH (50)

Essay-type questions (Attempt All Questions)   **(2×15=30)**

1. You are a nursing researcher interested in evaluating the effectiveness of early ambulation versus standard care in reducing postoperative complications in women undergoing caesarean section. Answer the following sub-questions based on this scenario: **(2+5+4+4)**
   a. Formulate a research hypothesis for the study.
   b. Describe the sampling technique and randomization method you would use.
   c. Outline the inclusion and exclusion criteria for participant selection.
   d. Briefly explain, how you will ensure blinding and minimize bias in this trial.

2. You are a first-year M.Sc. student assigned to a community health centre in a semi-urban area. You observe poor treatment compliance among individuals diagnosed with hypertension and diabetes, despite the availability of free services. You decide to explore this issue using a qualitative research approach.   **(2+3+2+3+2+3)**
   Answer the following sub-questions based on this scenario:
   a. Formulate a clear research problem and at least two objectives for your study.
   b. Identify a suitable qualitative research design for this study and justify your choice.
   c. Describe the sampling technique you would use. What criteria will you apply to select participants? Also, suggest an appropriate sample size.
   d. Explain the data collection method(s) and tool(s) you would use to gather information from participants.
   e. List and briefly explain at least three ethical considerations relevant to this study.
   f. Describe strategies you would use to ensure trustworthiness in your qualitative research. Mention at least three criteria.

Short Notes (Answer any four questions)   **(4×5=20)**

3. Explain the tools for data collection
4. Discuss the criteria for selecting a good research problem
5. Explain probability Sampling techniques with examples
6. Describe key elements involved in conducting experimental research
7. Explain Methods to establish the validity of a quantitative research instrument
8. Discuss the Variables in research

1. When is t-test used? What is the difference between independent t-test and paired t-test? The table below presents the average systolic blood pressure (SBP) in two groups after a 4-week intervention. An independent samples t-test was conducted on mean systolic blood pressure between the groups. Interpret the results **(5)**

Group	Mean SBP (mmHg)	Standard Deviation	n
Intervention	122.4	8.6	40
Control	130.7	9.1	40

t(78) = -3.60, p = 0.0007

2. List the statistical tests used to measure correlation among variables. Explain the direction and strength of correlation with appropriate figures. **(5)**

Short Notes (Answer any three questions) **(3×5=15)**

3. Explain the normal distribution curve
4. Describe the non-parametric tests
5. Describe the steps in the testing of a hypothesis
6. Calculate the mean, median, and mode for the following dataset:
   Patient waiting times in minutes: 10, 15, 15, 20, 25, 30, 30, 30, 35, 40