

No. of Printed Pages: 4

Roll No.....

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SCHOOL OF NURSING SCIENCES & ALLIED HEALTH
BPT 4th YEAR, ANNUAL EXAMINATION, MAY 2024
RESEARCH METHODOLOGY & BIostatISTICS (THEORY)
PAPER CODE: BPT – 462

Time: 3 hours

Maximum Marks: 75 Marks

(Write your Roll No. on top of the paper immediately)

Instructions:

- (i) Attempt Section A – Research Methodology and Section B - Biostatistics in separate main sheets
- (ii) Attempt ALL questions. Choices are mentioned wherever applicable
- (iii) Parts of a question must be answered together
- (iv) Use of Simple Calculator is allowed.

SECTION A – RESEARCH METHODOLOGY (50 Marks)

Part – I

MCQs and Short Answer Questions (All are compulsory) (10 × 1 Mark = 10 Marks)

Q1) The research participants are described in detail in which section of the research plan?

- a) Introduction
- b) Methodology
- c) Review of literature
- d) Data analysis

Q2) People who are available, volunteer or can be easily recruited are used in a sampling method called as:

- a) Simple random sampling
- b) Cluster sampling
- c) Systematic sampling
- d) Convenience sampling

Q3) which technique is generally followed when the population is finite?

- a) Area sampling technique
- b) Purposive sampling technique
- c) Systematic sampling technique
- d) None of the above

Q4) Define quantitative research.

Q5) The main purpose of a _____ study is to acquire knowledge:

- a) Exploratory
- b) Descriptive
- c) Diagnostic
- d) Descriptive and diagnostic

Q6) The _____ scale measurement has a natural zero

- a) Ratio
- b) Nominal
- c) Ordinal
- d) Interval

Q7) The full form of SPSS is.....

- a) Statistical prediction for social sciences
- b) Statistical package for the social sciences
- c) Social package for statistical sciences
- d) Social prediction for social sciences

Q8) what type of chart is useful for comparing values over categories?

- a) Pie chart
- b) Column chart
- c) Line graph
- d) Dot graph

Q9) what is type 1 error in hypothesis testing?

Q10) which of the following is the first step in designing a questionnaire?

- a) Identify the goal of a questionnaire
- b) Choose a question type
- c) Identify target population
- d) None of the above

Part – II

Answer any *ONE* of the following:

(1 × 10 Marks = 10 Marks)

Q1. What are the features of a good research design?

Q2. Short note on methods of randomization

Part - III

Answer any **TWO** of the following:

(2 × 15 Marks = 30 Marks)

- Q1. What are the steps involved in a research process
- Q2. What is the difference between qualitative and quantitative research? explain with examples
- Q3. Explain the difference between (with examples):
- a) Survey and observation
 - b) Survey and case study
 - c) Survey and experiments

SECTION B – BIOSTATISTICS (25 Marks)

Part – I

MCQs (All are compulsory)

(5 × 1 Mark = 5 Marks)

- Q1. If the sum of N observations is 630 and their mean is 42, then the value of N is:
- a) 21
 - b) 30
 - c) 15
 - d) 20
- Q2. The correct relation between variance and standard deviation (S.D.) of a variable X is:
- a) $S.D. = [\text{Var}(X)]^2$
 - b) $S.D. = [\text{Var}(X)]^{1/2}$
 - c) $S.D. = \text{Var}(X)$
 - d) none of the above
- Q3. The range of correlation coefficient is:
- a) 0 to ∞
 - b) $-\infty$ to ∞
 - c) 0 to 1
 - d) -1 to 1
- Q4. Probability of Type I error is
- a) Degrees Of Freedom
 - b) Power Of a Test
 - c) Level of Significance
 - d) None of The Above
- Q5. ANOVA stand for:
- a) Analytical variable
 - b) Analysis of covariance
 - c) Multivariate analysis
 - d) Analysis of variance

Part - II

Answer any **TWO** of the following:

(2 × 10 Marks = 20 Marks)

- Q1.** To study the effect of physical training on the serum cholesterol level, it was measured on 11 subjects before and after the training program and is given in the following table.

Subjects	Pre-training level (mg/dl)	Post-training level (mg/dl)
1	182	198
2	232	210
3	191	194
4	200	220
5	148	138
6	249	220
7	276	219
8	213	161
9	241	210
10	480	313
11	262	226

Does the data support the proposition that physical training program effectively reduced the serum cholesterol level? (Given that $t_{0.05(10)} = 1.812$)

- Q2.** Calculate arithmetic mean, standard deviation, and coefficient of variation of the height of 10 persons given below:

160, 160, 161, 162, 163, 163, 163, 164, 164, 170.

- Q3.** The marks obtained by 9 students in Statistics and Mathematics are given below:

Sl. No. of students	1	2	3	4	5	6	7	8	9
Marks in Statistics	25	33	45	19	11	40	31	16	29
Marks in Mathematics	42	49	39	21	18	47	11	09	26

Calculate the value of coefficient of rank correlation.
