

## APRIL 1990

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M.Sc. DEGREE EXAMINATION IN NURSING, APRIL 1990.

Second Semester

### BIO-STATISTICS AND RESEARCH METHODS

*Time: Three hours.*

*Maximum: 75 marks.*

*(Use of non-programmable calculator allowed)*

#### PART I — BIO-STATISTICS — (35 marks)

*Answer any TWO questions.*

*All questions carry equal marks.*

1. (a) What are the procedures adopted in the Nursing field in testing a statistical hypothesis under test of significance? (5 marks)

(b) In a baseline survey conducted by the Indian Institute of Medical Sciences under the Integrated Child Development Service, six couples were selected at random and their ages were noted as below. Calculate the correlation coefficient value  $r$  between the ages of husbands and wives:

Husband's age	23	27	28	29	30	31
Wife's age	18	22	23	24	25	26

(5 marks)

- (c) The population of a city  $X$  in March 1, 1971 was 6,01,035 and in March 1, 1981 was 7,53,594. Find out both March 1, 1989 and mid-year 1989 population of the same city by (i) Arithmetic Progression Method and (ii) Geometric Progression Method. (7½ marks)

2. (a) Explain the differences between random sample and non-random sample giving suitable examples from nursing field. (5 marks)

(b) In a rural village dispensary the investigator has to select a patient for interview from a ward of 50 patients, 20 of them women and 30 men, 10 of them educated upto high school standard and 40 not, 15 of them being well to do and 35 poor. What is the probability of the survey investigator selecting an educated rich male patient for his enquiry. (5 marks)

(c) In an experiment with 24 mice, 12 were selected as control group (A) and no treatment was given. The rest of 12 mice were taken as experimental (B) and was given a drug for certain period of time. At the end of the experiment, the mice were sacrificed and their kidney of each animal was weighed in milligrams. The arithmetic mean weight of the kidney of the first control group (A) was 318 milligrams and standard deviation weight was 10.2 milligrams, whereas the arithmetic mean weight of the second group (B) was 370 milligrams and standard deviation weight was 24.1 milligrams. Testing the difference between means of the two groups, give your comments about the effect of the drug over the kidney weight of the mice. (7½ marks)

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3. (a) Give the definitions of correlation and regression. (4 marks)

(b) In a tea estate, out of 394 patients administered inoculation, 267 were not attacked by cholera. In the control group of 912 persons 155 were attacked by cholera. Test the efficacy of inoculation in preventing cholera. Table value of  $\chi^2$  for 5% level of significance for one degree freedom is 3.841. (6 marks)

(c) In a town with an estimated mid-year population of 2,40,000 during the year 1989, there were 8,250 births of which 505 were still-births. Of the 7,500 persons affected by a particular disease 2,750 persons died on the same year due to that disease. Generally there were 4,150 deaths, 150 occurred to babies with 7 days of birth, 255 deaths at age below 28 days and 303 deaths between age of 28 days but below one year.

Calculate Birth Rate, Death Rate, Case Fatality Rate, Perinatal Mortality Rate, Neonatal Mortality Rate and Infant Mortality Rate. (7½ marks)

### PART II — RESEARCH METHODS — (40 marks)

4. Write short notes on the following : (4 × 5 = 20)
- (a) Errors in sampling.
  - (b) Survey methods in research.

- (c) Testing reliability of research tools.
- (d) Observation technique in data collection.

Or

5. Write specific and short answers on the following : (5 × 4 = 20)

- (a) Advantages of reviewing literature.
- (b) Difference between quantitative and qualitative research.
- (c) Criteria to be observed while presenting data on tables.
- (d) Importance of research in nursing.
- (e) Types of variables in a research study.

6. "A study to find out the effect of pre-operative teaching on breathing exercises of patients after abdominal surgery".

- (a) Comment on the researchability of this problem. (3)
- (b) Write the objectives and hypothesis to study this problem. (3)
- (c) Explain the design and sampling technique. (8)
- (d) Enumerate the process of data collection. (4)
- (e) What statistical methods would you apply ? (2)

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Second Semester

Paper II — BIO-STATISTICS AND RESEARCH METHODS

Time : Three hours.

Maximum : 75 marks.

(Use of non-programmable calculator allowed)

PART I]— (35 marks)

(BIO-STATISTICS)

Answer any TWO questions.

1. (a) Explain standard error discuss its role in testing a statistical hypothesis and decision making in nursing. (5 marks)

(b) In a particular survey conducted by a nursing research centre six aged persons were interviewed and their ages ( $x$ ) and systolic blood pressure values ( $y$ ) were noted as below :

Age ( $x$ )	56	42	72	36	63	49
Blood-Pressure ( $y$ )	147	125	160	118	149	129

Calculate Karl Pearson's correlation coefficient value  $r_v$  between the ages and blood pressure values. (5 marks)

(c) Given the following figures for village X, calculate the Standardized Death Rate.

Age group	0-1	1-4	5-14	15-24	25-34	35-44	45-54	55-64	65+	Total
Population	400	1,000	1,500	1,000	1,550	1,000	600	250	150	7,550
Standard specific death rate of India	100	40	5.5	4.5	5.5	5.5	10	35	70	19.5
Crude death rate of the village X = 20.0.										(7½ marks)

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2. (a) Explain in detail cluster sampling example from nursing field. (

(b) Two groups of three children each two boys and one girl and one boy and two girls vely. One child is drawn at random from eac Calculate the probability that

(i) both will be boys,

(ii) one will be boy and the other gi

(iii) at most one boy will be selecte (

(c) In a trial of two whooping cough vac first vaccine (1) was administered to 90 patients attack rate of 24.4% and the second vaccine administered to 86 patients with an attack rate ( Testing the efficacy of the above two vaccines, comments. (7

3. (a) The ranked heights(X) and the weights(Y) of ten rural infants are given below. Spearman's rank correlation co-efficient value bet pairs of ranked values of X and Y.

(1,2) (2,4) (3,1) (4,5) (5,3)

(6,9) (7,7) (8,10) (9,6) (10,8)

(b) In a course of anti-malarial work, qui administered to 606 patients out of which 587 we from fever. In the control group of 2934 patie were not given quinine, 2741 were free from Discuss the preventive value of quinine against fever. Table value of  $\chi^2$  for 5% level of signific one degree of freedom is 3.84. (6

(c) Compute the Specific Fertility rate, General Fertility rate, Total Fertility rate and Gross Reproduction' rate from the following data

Age group	15-19	20-24	25-29	30-34	35-39	40-44	45-49	Total
No. of Women (in.1000)	25	20	18	15	12	6	4	100
No. of live births	800	2,400	2,000	1,500	500	120	10	7,330

Given that out of 7,330, the number of female birth was 4,000.

(7½ marks)

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M.Sc. (Nursing) DEGREE EXAMINATION, APRIL 1991.

Second Semester

Paper II — BIOSTATISTICS AND RESEARCH METHODS

Time : Three hours. Maximum : 75 marks.

(Use of non-programmable calculator allowed)

PART I — (35 marks)

(BIOSTATISTICS)

Answer any TWO questions.

1. (a) Discuss with illustrations the scope of statistical methods in the area of Nursing. (5)

(b) Calculate the mean and standard deviation for the following data relating to the duration of stay in the hospital for treatment for a specific medical problem.

No. of days	1	2	3	4	5	6	7	8
Frequency	2	6	10	15	18	6	2	1

(8)

(c) What is a frequency curve? How is it drawn? (4½)

2. (a) Represent the following information through appropriate diagram :

	Out Patients			
Age Group	0—10	10—30	30—60	60—
Hospital A	30	20	25	50
Hospital B	10	30	35	60

	In Patients			
Age Group	0—10	10—30	30—60	60—
Hospital A	4	2	10	16
Hospital B	8	10	8	12

(5)

(b) Calculate the coefficient of correlation between the two variables X and Y mentioned in the Table given below, and interpret your findings :

Town	1	2	3	4	5	6	7	8
(X) No. of 2-Wheelers (in 000's)	2	3	3	4	5	8	12	16
(Y) No. of accidents during one month	10	12	8	16	25	18	30	50

(10)

(c) Write the equations of the two regression lines and indicate their uses. (2½)

3. (a) Explain how you would take a sample of size 10 from 100 units by simple random sampling. (5)

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(b) Examine if the economic background of the patients and their choice for special facilities are associated, from the following information :

Income level	No. opted for	
	Special Ward	General Ward
Lower	5	25
Middle	20	20
Upper	10	5

(7½)

(c) Write an explanatory note on the use of vital rates in the practice of nursing. (5)

### PART II — (40 marks)

#### (RESEARCH METHODS)

Answer any TWO questions.

4. (a) Why is research essential in Nursing? (4)

(b) Give example of one researchable problem from urban community field and state it. (3)

(c) What research design will you use to study this and describe the various steps in conducting the social research. (13)

5. Write short notes on any *three* of the following :

(a) Review of Literature

(b) Ethical aspects of Research

(c) Validity and Reliability

(d) Research Report. (20)

6. (a) What criteria would you consider in making a research proposal? (6)

(b) Write the advantages and disadvantages of questionnaire as a tool. (9)

(c) What principles would you keep in mind while preparing a questionnaire? (5)

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M.Sc. (Nursing) DEGREE EXAMINATION, NOVEMBER, 1992.

### Part I — Nursing

#### Paper II — BIOSTATISTICS AND RESEARCH METHODS

Time : Three hours.

Maximum : 75 marks.

(Use of non-programmable calculator allowed)

#### PART A — (35 marks)

##### (BIOSTATISTICS)

Answer any TWO questions.

1. (a) Discuss the importance of classification and tabulation of collected data. (5)

(b) Compute the coefficient of variation for the following frequency distribution :

No. of beds	< 5	5—9	10—20	21—30	30—50
No. of hospitals	20	15	16	8	1

(7½)

(c) Distinguish between causes and sample studies. Discuss their relative merits. (5)

2. (a) Define probability of an event. If the probability of complete recovery through surgery for piles is 0.8, what is the probability that 2 persons out of 3 persons who underwent surgery recover completely? (5)

(b) In order to test the effectiveness of a drug, for specific ailment an experiment was conducted on 18 individuals, 10 of them were administered the drug and 8 were treated without any drug (control). The following is the summary of the findings

	with drug	without drug
No. treated	10	8
Average number of days for cure	8	9
Standard deviation	1.5	1.2

Examine if the Drug is effective in reducing the number of days of treatment before cure. (7½)

(c) Explain the various types of diagrams used as pictorial aids to understand statistical summaries. (5)

(a) Calculate (i) crude birth rate (ii) general fertility rate (iii) age specific fertility rate and (iv) gross reproduction rate from the following information, taking sex ratio as 1 : 1

Age	Female population (in 000s)	No. of births
15—19	85	2,300
20—24	70	14,500
25—29	73	16,700
30—34	76	10,200
35—39	75	5,000
40—44	71	1,400
45—49	67	90

(10)

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(b) From the following information, compute (i) coefficient of correlation and (ii) determine the two regression lines. Also estimate the most probable income( $x$ ) for a medical expenditure( $y$ ) of Rs. 50

Number of individuals (sample size)	= 10
Mean income per month ( $\bar{x}$ )	= 650
Mean expenditure on medicine ( $\bar{y}$ )	= 80
S.D. of income ( $s_x$ )	= 10
S.D. of expenditure ( $s_y$ )	= 8
Covariance between income and expenditure $p_{xy}$	= 12
	(7½)

### PART II — (40 marks) (Research Methods)

Answer any TWO questions.

4. (a) Write an explanatory note on the sources and selection of a research problem. (5)

(b) Discuss the merits of the Questionnaire method of collecting data. Construct a questionnaire that would enable you to obtain (i) Socio-economic status, (ii) Family medical history and (iii) Patient's medical history, with regard to Diabetes patients approaching your hospital for treatment. (10)

(c) How do you formulate hypotheses in a research investigation? (5)

5. (a) What are experimental studies? Explain a situation where this type of research is to be adopted. (6)

(b) Describe the essential ingredients of a good research report, highlighting the functional role played by each of its constituents. (8)

(c) Discuss the role of statistics as a tool to interpret the data collected, through appropriate illustration. (6)

6. Write explanatory notes on any *three* of the following topics:

(a) Methods of collecting data.

(b) Observational studies.

(c) Programme evaluation.

(d) Classification and tabulation of data.

(20 marks)

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[ND 297]

**M.Sc. (Nursing) DEGREE EXAMINATION.**

**BIO-STATISTICS AND RESEARCH METHODS  
INCLUDING NURSING RESEARCH**

**(Proposal Presentation)**

**Time : Three hours**

**Maximum : 100 marks**

**PART A — (50 marks)**

**(BIO-STATISTICS)**

**Answer any TWO questions.**

1. (a) What are the various statistical methods that are used in nursing research? Describe their uses. (10)

(b) How will you prepare tables, graphs and diagrams from the collected data? Explain with due examples. (10)

(c) Describe the advantages of graphical representation of data in nursing research. (5)

2. (a) Define arithmetic mean and median. (4)

(b) What are the requisites of a good average? (6)

(c) Calculate arithmetic mean and median from the following data : (15)

Class interval :	0-5	5-10	10-15	15-20	20-25	25-30
Frequency :	1	5	9	6	3	1

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[ND 297]

3. (a) Define coefficient of correlation. Explain its interpretation with examples. (7)

(b) What do you mean by regression? What are its uses? (6)

(c) Given the following data, calculate the coefficient of linear correlation and the two regression lines: (8 + 4)

X :	40	42	43	45	48
Y :	110	112	114	116	118

PART B — (60 marks)

(RESEARCH METHODS)

Answer any TWO questions.

4. (a) Describe the simple *t* test and the chi-square test by citing examples from a nursing research problem. (10)

(b) How will you compute the commonly used vital and health Statistics and estimate the population by using arithmetic Progression method? (10)

(c) Briefly explain any one method of research methods used in nursing. (5)

[ND 297]

5. (a) Describe the procedure of quantifying, analysing and interpreting the data relating to research and nursing research methods. (10)

(b) Describe the procedure of making various assumptions and hypotheses relating to the Statistical analysis of data. Bring out the examples to illustrate this in the context of nursing research problems. (10 + 5)

6. (a) How will you elicit the data through questioning, observations measurements and techniques? (10)

(b) Describe vividly the methodology involved in making recommendations based on the findings for application to nursing and further research. (15)

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[SB 332]

M.Sc. (Nursing) DEGREE EXAMINATION.

BIO-STATISTICS AND RESEARCH METHODS  
INCLUDING NURSING RESEARCH

(Proposal Presentation)

Time : Three hours

Maximum : 100 marks

PART A — (50 marks)

(BIO-STATISTICS)

Answer any TWO questions.

1. (a) Discuss the relevance of Biostatistics in nursing research. (10)

(b) Explain the different methods of presentation of statistical data. (10)

(c) Compute the mean and standard deviation for the following distribution. This data represents the number of hospital stay in a hospital. (5)

Days	1	2	3	4	5	6
No. of patients	20	40	50	40	30	20

[SB 332]

2. (a) Define probability. Find the probability of getting 3 girl babies in consecutive deliveries. (5)

(b) The table below gives the data obtained during a cholera epidemic. (15)

	Attacked	Not attacked
Inoculated	31	469
Not inoculated	185	1315

Test the effectiveness of inoculation in preventing the attack of cholera.

(c) (i) Define coefficient of variation.

(ii) State the range of Pearson correlation efficient. (5)

3. (a) Given below are measurements of height ( $\alpha$ ) and length of forearm of 6 adults. Calculate the coefficient of correlation and construct the two regression lines. (15)

X :	64	62	65	64	63	62
Y :	17.5	16.0	17.0	18.5	16.5	17.0

(b) (i) Define infant, neonatal mortality rate.

(ii) Calculate (1) crude birth rate (2) age specific fertility rate and (3) gross reproduction rate from the following information, taking sex ratio as 1 : 1. (10)

[SB 332]

Age (Years)	Female population (in 000's)	No. of births
15-19	85	2,300
20-24	70	14,500
25-29	73	16,700
30-34	76	10,200
35-39	75	5,000
40-44	71	1,400
45-49	67	90

PART B — (50 marks)

(RESEARCH METHODS INCLUDING  
NURSING RESEARCH)

Answer any TWO of the following.

All questions carry equal marks.

4. It is proposed to study the hospital morbidity pattern in a state and it is decided to make use of hospital records for the years 1990, 1991, 1992 from 3 government hospitals and 3 private hospitals.

(a) Given that there are 250 government hospitals and 100 private hospitals in the state, discuss the various sampling schemes to select the hospitals for study.

(b) Explain the statistical data to be collected and describe the method of determining and comparing the morbidity pattern over the three years in each of the hospitals. Also indicate how you will identify any important difference between hospitals.

[SB 332]

5. In a study of length of time spent on individual home visits by public health nurses data on length of home visit (in minutes). The nurses age groups (20-29, 30-39, 40-49, and 50 and over) and types of patients (cardiac, cancer, tuberculosis) were identified.

(a) What is the appropriate design for analysing such a data?

(b) What are the basic assumptions you will assume to analyse the data?

(c) What are the null hypothesis to be tested?

(d) Write a short note on the analysis you will perform to test your null hypothesis.

6. Discuss briefly on any FIVE of the following :

(a) Observational studies.

(b) Probability — Normal distribution curve.

(c) Fixation of sample size.

(d) Sources of errors in survey.

(e) Experimental design.

(f) Bias.

(g) Critical incident technique.

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PK 262

M.Sc.(Nursing) DEGREE EXAMINATION

Part I First Year

BIO-STATISTICS AND RESEARCH METHODS INCLUDING  
NURSING RESEARCH (PROPOSAL PRESENTATION)

Time: Three hours

Max.marks:100

Part A - (50 marks)

BIO-STATISTICS

Answer Any Two questions.

- 1.(a) Describe various Sampling techniques that are used in Nursing Research and its uses. (8)
- (b) Calculate for the following data Standard Deviation.
- |                  |        |         |         |         |         |
|------------------|--------|---------|---------|---------|---------|
| Class Interval : | 0 - 10 | 10 - 20 | 20 - 30 | 30 - 40 | 40 - 50 |
| Frequency        | 8      | 10      | 14      | 12      | 9       |
- (10)
- (c) What is 'Scatter diagram'? Write its importance with examples. (7)
2. (a) Explain Sampling Distribution and its uses. (8)
- (b) Describe 'Inferential Statistics' and its uses in Estimation. Write Normal, t and  $X^2$  - tests proper usage. (7)
- (c) Is the mean level of Hb 10.6g per 100 ml significantly different from population mean level of Hb 11.2 g per 100ml with standard deviation of 1.57  
The size of the sample was 890 for calculating mean level of Hb 10.6g/100ml. (5% level 1.96 value) (10)
3. (a) Define 'Confidence Interval' and its uses in Estimation. (7)
- (b) What is 'Health Statistics'? (5)
- Enumerate ten sources of health statistics. (5)
- (c) Explain the methods of collecting data. (5)
- Write different rates that are used in 'Vital Statistics'. (3)

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Part B - (50 marks)

RESEARCH METHODS INCLUDING NURSING RESEARCH

Answer any TWO of the following

All questions carry equal marks.

4. (a) State the characteristics of Research.  
(b) Why is Nursing Research important? (5)  
(c) Give the meaning of the terms validity and reliability.  
(d) Briefly explain the different techniques to ensure reliability of an instrument. (5)  
(e) Differentiate between population and sample. (5)
5. Write Explanatory notes on any FIVE:  
(a) Data processing  
(b) Pilot study  
(c) Documentation  
(d) Formulation of hypothesis  
(e) Literature review  
(f) Interview as a tool for data collection. (5x5=25)
6. You have been chosen as one of the experts to study and report on the problem "Hospital acquired infections in five major hospitals are high and the mortality rate of neonates seems to be very high".  
(a) State the problem you would like to study  
(b) Write the scope and purposes of the study  
(c) List and define the variables  
(d) Outline the study design  
(e) Explain the settings, sampling and research approach in relation to this study.

(25)

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MP 273

M.Sc. (Nursing) DEGREE EXAMINATION

Part I

First Year

BIO-STATISTICS AND RESEARCH METHODS INCLUDING  
NURSING RESEARCH (PROPOSAL PRESENTATION)

Time: Three hours

Max. marks:100

Part A - ( 50 marks )

(BIO-STATISTICS)

Answer any TWO questions.

1. (a) Define random sample. Discuss methods of drawing a random sample. (7)
- (b) Define sample and population. How is this helpful in Health and Nursing research? (8)
- (c) Pulse rate of 10 patients are given below:  
61 , 70, 97 , 70 , 102 , 100 , 98 , 75, 102 , 77.  
Compute mode and mean of pulse rate. (10)
2. (a) What is statistics? How is this used in Medical and health sciences? (10)
- (b) Illustrate its importance with the help of three practical examples from the field of medicine and health. (8)
- (c) Write the basic rules for drawing a graph. (7)
3. (a) Explain the term "Correlation" and give the different methods to measure Correlation. (10)
- (b) Define dispersion. State the method of measuring dispersion. (10)
- (c) Write about analysis of variances. (5)

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Part B - (50 marks)

RESEARCH METHODS INCLUDING NURSING RESEARCH

Answer any TWO of the following

All questions carry equal marks

4. (a) Define the purposes of literature review.  
(b) List the most utilized sources of nursing & related literature.  
(c) Write steps to evaluate critically the literature review.  
(d) Write purpose of having theoretical framework in a research study.  
(e) Define operational definition. (5x5=25)
5. Write short notes on any FIVE of the following:  
(a) Survey method of Research  
(b) Standardisation of research tool  
(c) Method of critiquing the research design  
(d) Quasi-experimental design  
(e) Cross sectional Research study  
(f) Reliability of an instrument. (5x5=25)
6. You are appointed as one of the experts to study and report on the problem - "Low standard of nursing care in most of the Indian hospitals" due to various reasons.  
(a) State the problem you would like to study  
(b) Write the scope and purpose of study  
(c) List and define the variables  
(d) Outline the study design  
(e) Explain the setting, sampling and research approach in relation to this study. (25)

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MS 275

M.Sc.(Nursing) DEGREE EXAMINATION

First Year

Part I

BIO-STATISTICS AND RESEARCH METHODS INCLUDING  
NURSING RESEARCH (PROPOSAL PRESENTATION)

(Common to all branches)

Time: Three hours

Max.marks:100

Answer Sections A and B in separate answer books.

Section A - ( 50 marks)

BIO-STATISTICS

Answer any TWO questions.

1. (a) What are the various statistical measures of central tendency? (10)  
(b) What is the need for these indices to be used in descriptive study? (8)  
(c) Describe normal probability curve. (7)
2. (a) Distinguish between Bar diagram and Histogram. (10)  
(b) Find the standard deviation of the erythrocyte sedimentation rate (ESR), found to be 3, 4, 5, 4, 2, 4, 5 and 3 mm/hr in 8 normal individuals. (10)  
(c) Define median and its uses. (5)
3. (a) Describe the 'Survey method' of data collection and give its uses in collection of medical statistics. (10)  
(b) Distinguish between random and non-random sampling. (10)  
(c) Write about Kurtosis. (5)

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Section B - (50 marks)

**RESEARCH METHODS INCLUDING NURSING RESEARCH**

Answer any TWO of the following.

All questions carry equal marks.

4. (a) Write the significance of research in nursing. (5)  
(b) Give steps of problem statement. (5)  
(c) Identify the criteria for determining the significance of a research problem. (5)  
(d) List the criteria for critiquing a problem statement. (5)  
(e) Differentiate between dependent and independent variables. (5)
5. Write short notes on any FIVE of the following:  
(a) Hypothesis  
(b) Questionnaire as a tool for data collection  
(c) Experimental research  
(d) Longitudinal research study  
(e) Components of research proposal  
(f) Validity of an instrument of research. (5x5=25)
6. You have been selected as one of the experts to study and report on the problem 'Shortage of Nurses' in Civil hospitals.  
(a) State the problem you would like to study  
(b) Write the scope and purpose of study  
(c) List and define the variables  
(d) Outline the study design  
(e) Explain the setting, sampling and research approach in relation to this study. (5x5=25)

**APRIL 1998**

**[SV 291]**

**M.Sc. (Nursing) DEGREE EXAMINATION.**

**Part I**

**First Year**

**BIO-STATISTICS AND RESEARCH METHODS  
INCLUDING NURSING RESEARCH (PROPOSAL  
PRESENTATION)**

**Time : Three hours**

**Maximum : 100 marks**

**Answer Sections A and B in separate answer books.**

**SECTION A — (50 marks)**

**BIO-STATISTICS**

**Answer any TWO questions.**

1. (a) Define a sample. Describe the types of sampling procedure.  
(b) Describe the sampling technique for a study of growth and development of rural children. (10 + 15 = 25)
2. (a) Explain the importance of Health Statistics.  
(b) Discuss the difficulties in obtaining morbidity statistics.  
(c) Explain :
  - (i) Birth rate.
  - (ii) Infant mortality rate.
  - (iii) General fertility rate. (5 + 5 + 15 = 25)
3. (a) Discuss the importance of linear regression lines in statistical studies.  
(b) Explain the properties and usefulness of normal distribution.  
(c) Discuss the difference between the sample mean and the population mean when the sample size is large. (9 + 8 + 8 = 25)

**SECTION B — (50 marks)**

**RESEARCH METHODS INCLUDING NURSING  
RESEARCH**

**Answer any TWO questions.**

4. (a) Outline the major aspects and methods of evaluating a programme.  
(b) Discuss the steps you will follow for the assessment of the Quality of nursing care. (10 + 15 = 25)
5. (a) Discuss observation as a method of data collection. Explain the advantages and disadvantages of this method.  
(b) Explain the types of observation methods and reliability of the data collected by this method. (12 + 13 = 25)
6. Write briefly on the following :
  - (a) Sources of errors in a survey.
  - (b) Schedules and tools of survey.
  - (c) Preparation of Reports.
  - (d) Use of statistical methods in Nursing.
  - (e) Double blind study. (5 × 5 = 25)

**OCTOBER 1999**

**[KA 403]**

**M.Sc. (Nursing) DEGREE EXAMINATION.**

**First Year**

**Part I**

**Paper III — BIOSTATISTICS AND RESEARCH  
METHODS INCLUDING NURSING RESEARCH**

**(PROPOSAL PRESENTATION)**

**Time : Three hours**

**Maximum : 100 marks**

**Answer Section A & B in separate answer books.**

**PART A — (50 marks)**

**(BIOSTATISTICS)**

1. (a) What do you mean by Vital Statistics?  
(b) Discuss the uses of Vital statistics.  
(c) Describe the methods of collection of vital statistics. (5 + 7 + 8 = 20)
2. (a) Describe the different Sampling methods.  
(b) Discuss the difference between population and samples. (10 + 10 = 20)
3. Write short answers for any TWO of the following : (5 × 2 = 10)
  - (a) Reliability of a tool
  - (b) Probability
  - (c) Hypothesis
  - (d) Tabulation.

**PART B — (50 marks)**

**(RESEARCH METHODS INCLUDING NURSING  
RESEARCH)**

4. (a) Discuss in brief, the steps you will undertake while conducting Nursing Research.  
(b) Explain the uses of Review of Literature, while writing the report. (10 + 10 = 20)
5. (a) List the different designs for nursing research.  
(b) Discuss the advantages and disadvantages of Experimental design. (5 + 15 = 20)
6. Write short answers for any TWO of the following : (2 × 5 = 10)
  - (a) Conceptual Frame work
  - (b) Historical Research
  - (c) Case studies.

**APRIL 2000**

**[KB 403]**

**M.Sc. (Nursing) DEGREE EXAMINATION.**

**First Year**

**(Revised Regulations)**

**Part I**

**Paper III — BIOSTATISTICS AND RESEARCH  
METHODS INCLUDING NURSING RESEARCH**

**Time : Three hours**

**Maximum : 100 marks**

**Answer Part A and B in separate answer books.**

**PART A — (50 marks)**

**BIOSTATISTICS**

1. (a) Describe the chief measures of central tendency. Indicate the situations in which they are suitable.

(b) To compare their efficacy, two sleep producing drugs were tested independently on 5 patients. The following data gives the amount of sleep (in hours) the patient had after taking the drugs :

Drug X : 6    2    4    5    2

Drug Y : 1    6    7    2    6

Compare the efficiencies of the two drugs, on the basis of coefficient of variation. (10 + 10 = 20)

## APRIL 2000

2. (a) Discuss the census and sample methods of collecting data in relation to merits and demerits.

(b) Of 1482 persons exposed to a disease in a locality 368 persons developed the disease. Of these 1482 persons 343 were vaccinated against the disease. Among those vaccinated, 35 persons developed disease. Can vaccination be regarded as a preventive measure of the given disease as evidenced from above data.

(10 + 10 = 20)

3. Write short answers for any TWO of the following :

(2 × 5 = 10)

- (a) Normal curve
- (b) Mutually exclusive
- (c) Types of errors
- (d) Cumulative frequency.

### PART B — (50 marks)

#### RESEARCH METHODS INCLUDING NURSING RESEARCH

Answer any TWO of the following.

4. A research study proposes to evaluate the effectiveness of a planned diet counselling programme, on 50 adult cooley workers, who are found to have iron-deficiency anemia, in terms of their knowledge gain, change in dietary practices and alteration in blood pictures of Hb and total protein.

Describe the most suitable :

- (a) Research design
- (b) Data collection technique for this study.

(6 + 14 = 20)

5. (a) Explain the types of 'research' with suitable examples.

(b) Describe briefly the sequential steps of writing a research proposal. (6 + 14 = 20)

6. Write short answers of any TWO of the following :  
(2 × 5 = 10)

- (a) Research hypothesis
- (b) Characteristics of experimental research
- (c) Limitations and delimitations of a research study.

**OCTOBER 2000**

**[KC 403]**

**M.Sc. (Nursing) DEGREE EXAMINATION.**

**First Year**

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**Part I**

**Paper III — BIOSTATISTICS AND RESEARCH  
METHODS INCLUDING NURSING RESEARCH**

**Time : Three hours**

**Maximum : 100 marks**

**Answer Parts A and B in separate answer books.**

**PART A — (50 marks)**

**BIOSTATISTICS**

**Answer any TWO questions.**

1. (a) Explain with examples any three methods of sampling. (9)
- (b) Describe the measures of central tendency drawing suitable illustrations. (7)
- (c) Write briefly on
  - (i) Probability
  - (ii) Validity of a tool
  - (iii) Hypothesis testing. (9)

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2. (a) Distinguish between Bar diagram and Histogram. (10)

(b) Find the standard deviation of the following values : (15)

12, 18, 20, 30, 9.

3. Write briefly on the following : (5 × 5 = 25)

(a) Median and its use

(b) Pilot study

(c) Descriptive approach in research

(d) Questionnaire

(e) Reliability.

PART B — (50 marks)

RESEARCH METHODS INCLUDING NURSING  
RESEARCH

Answer ALL the questions.

4. (a) What are the points to be observed in a research report? (10)

(b) Discuss the importance of action research in nursing. Illustrate your answer with two examples from the nursing service. (10)

5. (a) Discuss the observational methods used in the data collection process. (10)

(b) Discuss the criteria that are used to evaluate a research report. (10)

6. Write briefly on any TWO of the following :  
(2 × 5 = 10)

(a) Rating scale

(b) Sources of error in a survey

(c) Case control study.