M.Sc. CLINICAL NUTRITION DEGREE EXAMINATION

FIRST YEAR

PAPER VI – RESEARCH METHODS & BIOSTATISTICS

Q.P. Code: 281306

Time : Three Hours   **Maximum : 100 marks**

Answer ALL questions

I. Elaborate on: **(2 x 20 = 40)**

1. Define research? Explain the various phases and steps in conducting a quantitative research?

2. Calculate the co-relation co-efficient from following data and interpret.

Height in Inches :	57	59	62	63	64	65	55	58	57
Weight in lbs :	113	117	126	126	130	129	111	116	112

II. Write notes on: **(10 x 6 = 60)**

1. Chi square test.

2. Probability and levels of significance.

3. One and two tailed test.

4. Characteristics of good research tool.

5. Coding of data and preparation of master sheet.

6. Measures of variability.

7. Vital statistics.

8. Rating scale and attitude scale.

9. Quasi experimental design.

10. Steps in literature review.

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M.Sc. CLINICAL NUTRITION DEGREE EXAMINATION

FIRST YEAR

PAPER VI – RESEARCH METHODS & BIOSTATISTICS

Q.P. Code: 281306

Time : Three Hours   **Maximum : 100 marks**

Answer ALL questions

I. Elaborate on: **(2 x 20 = 40)**

1. Define hypothesis? Explain about various types of hypothesis and mention about testing of hypothesis?

2. Define Biostatistics? Explain about various statistical tests and their significance?

II. Write notes on: **(10 x 6 = 60)**

1. Ethical issues in research.

2. Bio Physiological methods of data collection.

3. Experimental study design.

4. Probability sampling technique.

5. Parametric and non parametric test.

6. Variables in research.

7. Case control Vs. cohort studies.

8. SPSS and its uses in research.

9. Diagrammatic representation of data.

10. Calculate the standard deviation and mean deviation from mean for the following series:

Marks	0-10	10-20	20-30	30-40	40-50
No. of Students	5	8	15	16	6

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M.Sc. CLINICAL NUTRITION DEGREE EXAMINATION

FIRST YEAR

(2012-2014 Batch onwards)

PAPER VI – RESEARCH METHODS & BIOSTATISTICS

Q.P. Code: 281306

Time : Three Hours   **Maximum : 100 marks**

Answer ALL questions

I. Elaborate on: **(2 x 20 = 40)**

1. Define data. Explain about various methods of data collection and mention about ensuring quality of data.

2. a) Mention about Normal distribution curve and its significance in selection of statistical tests.

   b) An outbreak of Salmonella-related illness was attributed to ice cream produced at a certain factory. Scientists measured the level of Salmonella in 9 randomly sampled batches of ice cream. The levels (in MPN/g) were: 0.593, 0.142, 0.329, 0.691, 0.231, 0.793, 0.519, 0.392, 0.418. Is there evidence that the mean level of Salmonella in the ice cream is greater than 0.3 MPN/g? The critical value of t with 8 degrees of freedom is 2.306 at 5% level of significance.

II. Write notes on: **(10 x 6 = 60)**

1. Define hypothesis and explain about various types of hypothesis with suitable examples related to research in clinical nutrition.

2. Experimental research designs.

3. Scales of measurement.

4. Define sampling and mentions the methods of sampling and Characteristics of good sample.

5. Coding of data and preparation of master sheet.

6. Measures of dispersion and variability.

7. Measures of mortality and morbidity.

8. In a clinical trial to see the effect of improvement in hemoglobin among anemic children, the following data were obtained. Calculate the Mean and standard deviation from the mean?

HB level :	4-6	6-8	8-10	10-12	12-14
No of patients :	2	3	15	20	10

9. Out of 25 women who had uterine cancer, 20 claimed to have used estrogens. Out of 30 women without uterine cancer 5 claimed to have used estrogens. Is there an association between uterine cancer and estrogen use? (Ref Table value is 3.841).

10. Following are the distribution of patient's undergone appendectomy; they were assessed after 30 minutes to grade their pain level. The two anesthetists gave the grade of pain independently as follows. Calculate Spearman Rank Correlation Coefficient and give the inference.

Anaesthetist 1:	2	3	4	8	1	5	7	6
Anaesthetist 2:	1	4	3	7	2	6	8	5

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M.Sc., CLINICAL NUTRITION
(from 2012-2014 onwards)
FIRST YEAR
PAPER VI – RESEARCH METHODS AND BIOSTATISTICS

Q.P. Code : 281306

Time : Three hours   **Maximum : 100 marks**

I. Elaborate on :   (2 x 20 = 40)

1. Explain the steps involved in testing of hypothesis?

2. A group of 5 patients treated with medicine 'A' weigh 42, 39, 48, 60 and 41 kgs: Second group of 7 patients from the same hospital treated with medicine ' B' weigh 38, 42 , 56, 64, 68, 69 and 62 kgs. Do you agree with the claim that medicine ' B' increases the weight significantly?.The critical value of t with 10 degrees of freedom is 1.812 at 5% level of significance.

II. Write notes on: (10 x 6 = 60)

1. Sampling.
2. Power of a test.
3. Characteristics of Observation method.
4. Review of literature.
5. Analysis Of Variance.
6. Research Protocol writing.
7. Ethical issues in human research.
8. Features of SPSS.
9. An antidiabetic drug was tested in diabetic patients. The fasting blood sugar values (mg%) before and after the drug are given for 6 patients. Analyze the data by using a suitable statistical test? (Ref Table value : 2.57)

   Before : 120   122   134   128   131   125
   After   : 110   87   111   116   93   87

10. In an experiment to determine the effect of a certain drug on serum cholesterol level (Measured in mg/100 ml) in 30 year old males, The following range of data were recorded for the drug treated group? Calculate the Arithmetic mean and Standard Deviation?

Cholesterol level:	120-140	140-160	160-180	180-200	200-220	220-240
No of patients :	1	2	3	5	7	6

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M.Sc. CLINICAL NUTRITION EXAMS
FIRST YEAR
PAPER VI – RESEARCH METHODS AND BIOSTATISTICS

Q.P. Code : 281306

Time : Three hours   Maximum : 100 Marks

I. Elaborate on: **(2 x 20 = 40)**

1. Explain the various methods of sampling techniques and also to determine the sample size.

2. Write down the steps involved in testing of hypothesis.

II. Write notes on: **(10 x 6 = 60)**

1. Write down the scope of Biostatistics in Nutrition.

2. Explain the two types of error in testing of hypothesis.

3. What do you mean by case control study? Explain briefly

4. Explain the various Non probability sampling.

5. Write down the characteristics and uses of a good questionnaire.

6. Explain Ogives.

7. Explain the various methods of measuring variability.

8. Explain standard Error of mean.

9. How will you merge two data files in SPSS?

10. Find whether or not there is a significant difference between the mean inter-orbital width (mm) of two groups of pigeons, consisting of 10 and 8 pigeons respectively.
    Group I (X1) 11.9   11.4 11.9   11.4 11.2   12.2   12.6   12.2 12.7 12.5
    Group II (X2) 10.8   10.9 10.5   11.0 10.6   10.5   10.8   10.5

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M.Sc. CLINICAL NUTRITION EXAMS
FIRST YEAR
PAPER VI – RESEARCH METHODS AND BIOSTATISTICS

Q.P. Code : 281306

Time : Three hours   **Maximum : 100 Marks**

I. Elaborate on: **(2 x 20 = 40)**

1. Following are the serum calcium levels in 100 normal adults find mean, median, mode for the given data.

Serum ca level intervals	No. of adults
7.44 -7.99	4
8.00 -8.55	3
8.56 -9.11	12
9.12 -9.67	19
9.68 -10.23	21
10.24 -10.79	20
10.80 -11.35	10
11.36 -11.91	8
11.92 -12.47	2
12.48 -13.03	1

2. Explain the correlation and regression.

II. Write notes on: **(10 x 6 = 60)**

1. Probability methods.

2. Critical region.

3. ANOVA.

4. Define-sensitivity, specificity, PPV, NPV.

5. Type I and Type II errors.

6. Difference between variance, standard deviation and standard error.

7. Kruskal Wallis test.

8. Test for proportion.

9. Alternative hypothesis and null hypothesis.

10. Presentation of data.

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M.Sc. CLINICAL NUTRITION EXAMS
FIRST YEAR
PAPER VI – RESEARCH METHODS AND BIOSTATISTICS

Q.P. Code : 281306

Time : Three hours   **Maximum : 100 Marks**

I. Elaborate on: **(2 x 20 = 40)**

1. The fasting blood glucose levels in 100 normal adults are given below. Find the Mean, standard deviation and coefficient of variation.

Blood glucose level	Number of adults
100-104	5
105-109	8
110-114	10
115-119	12
120-124	18
125-129	16
130-134	14
135-139	9
140-144	8

2. What are the types of data and explain the various methods of sampling techniques?

II. Write notes on: **(10 x 6 = 60)**

1. Scope of Biostatistics in Nutrition.

2. Hypothesis testing.

3. Case control study.

4. Standard error of mean.

5. Type I error and type II error.

6. Mortality.

7. Student's 't' test.

8. Median test.

9. Variance test.

10. Difference between frequency polygon and frequency curve.

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M.Sc. CLINICAL NUTRITION EXAMS
FIRST YEAR
PAPER VI – RESEARCH METHODS AND BIOSTATISTICS

Q.P. Code : 281306

Time : Three hours   **Maximum : 100 Marks**

I. Elaborate on: **(2 x 20 = 40)**

1. Explain the various study design in detail.

2. Ten individuals were fed with rice in first month and body weights of the individuals were recorded. In the next month they were fed with grams and their weights were measured again. The respective weights of ten individuals in two months are as follows:-
   Weight in 1st month :   50   60   58   52   51   62   58   55   50   65
   Weight in 2nd month: 56   58   68   61   56   59   64   60   50   62
   Test the given data to find the impact of grams in the individual's nutrition.

II. Write notes on: **(10 x 6 = 60)**

1. Define epidemiology and mention its aim and development.

2. Write down the objectives of research problem.

3. What are the design strategies in epidemiological research?

4. Write down the characteristics of epidemiological research.

5. Explain the various methods of probability sampling.

6. Compute the coefficient of variation of the following distribution of the body weights (grams) of a sample of animals.
   Class interval: 101-105   106-110   111-115   116-120   121-125
   Frequencies   6   22   40   25   7

7. Explain the various scales of data measurement.

8. Explain quantitative and qualitative data with example.

9. Write down the indicators to measure mortality and morbidity.

10. Write down the features of SPSS.

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M.Sc. CLINICAL NUTRITION EXAMS
FIRST YEAR
PAPER VI – RESEARCH METHODS AND BIOSTATISTICS

Q.P. Code : 281306

Time : Three hours   **Maximum : 100 Marks**

I. Elaborate on: **(2 x 20 = 40)**

1. Explain the various study designs in detail.

2. Find if there is any significant correlation between the height and weight given below:

Height in inches :	57	59	62	63	64	65	55	58	57
Weight in lbs :	113	117	126	126	130	129	111	116	112

II. Write notes on: **(10 x 6 = 60)**

1. Epidemiology – definition, aim and development.

2. Quantitative and qualitative data with examples.

3. Cumulative frequency curves.

4. Methods of sampling techniques.

5. Application Chi-square test.

6. Measures of diagnostic efficacy.

7. Test of significance difference between two means.

8. Type I and Type II error.

9. Kolmogorov Smirnov test.

10. Merging and splitting of data files.

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M.Sc. CLINICAL NUTRITION EXAMS
FIRST YEAR
PAPER VI – RESEARCH METHODS AND BIOSTATISTICS

Q.P. Code : 281306

Time : Three hours   **Maximum : 100 Marks**

I. Elaborate on: **(2 x 20 = 40)**

1. Cohort, case control, cross sectional. Experimental and interventional studies.

2. Scales of measurements and methods of data collection.

II. Write notes on: **(10 x 6 = 60)**

1. Concept and development of epidemiology in research.
2. Objectives of research problem and Hypothesis testing.
3. Methods of non-probability sampling.
4. Reliability types of tools and their uses.
5. Qualitative and quantitative data.
6. Tabulation and characteristics of good table.
7. Graphical representation of data.
8. Measures of Mortality and Morbity.
9. Variability measures of data.
10. Large sample tests.

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[AHS 0321]   **MARCH 2021**   **Sub. Code: 1306**
(OCTOBER 2020 EXAM SESSION)
M.Sc. CLINICAL NUTRITION
FIRST YEAR (From 2012-2014 onwards)
PAPER VI – RESEARCH METHODS AND BIOSTATISTICS
Q.P. Code : 281306

Time: Three hours   Answer ALL Questions   Maximum: 100 Marks

I. Elaborate on: **(2 x 20 = 40)**

1. Scales of measurements. Methods of data collection with examples.
2. Define research and explain the steps involved in a scientific research process.

II. Write notes on: **(10 x 6 = 60)**

1. Correlational Study and Case Study.
2. Define sampling and methods of sampling.
3. Graphs for Nominal and Ordinal Data.
4. One way Analysis of Variance and their importance.
5. Measures of Central Tendency.
6. Application of Chi-Square Tests.
7. Concept, definition and aim of Epidemiology.
8. Large sample test.
9. Define regression with example.
10. Splitting data files.

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