00806

MASTER OF SCIENCE (DIETETICS AND FOOD SERVICE MANAGEMENT)

Term-End Examination

June, 2010

MFN-009 : RESEARCH METHODS AND BIOSTATISTICS

Time : 3 hours *Maximum Marks : 100*

Note : *Question No **1** is **compulsory**. Answer **five** questions in all.*

1. (a) Define the following : **10**

(i) Hypothesis

(ii) Bias

(iii) Prospective study

(iv) Sampling error

(v) Ordinal scale

(b) Give one example for each of the following : **5**

(i) Life - style Variable

(ii) Observational study

(iii) Characteristics of a good sample

(iv) Types of tests

(v) Graphs for normal and ordinal data

(c) Fill in the blanks : 5

(i) _____ is a graph in which class-intervals are represented along the horizontal axis and their corresponding frequencies are represented by areas in the form of rectengular vertical bars on the interval.

(ii) _____ is the measure of the likelihood of an event and is complementary to uncertainty.

(iii) The ability of a test to give positive results in true cares of a disease is called _____ .

(iv) _____ is a point in an array, above and below which one half of the observations fall.

(v) A relative risk of _____ means there is no difference in risk between the two groups.

2. (a) Obesity among children in fast incoming a major public health problem in urban areas. As a researcher you would like to study the prevalence as well as the determinants / risk factors for obesity in the urban population. Plan a suitable study covering the following aspects :

(i) Statement of the problem 2

(ii) Objectives of the study 3

(iii) Sample and sampling procedure 3

(iv) Sample size determination (give the formula etc.) 2

(v) Data collection/Methodology 5

(vi) Data analysis 3

(vii) Interpretation of finding 2

3. Explain the following briefly giving suitable examples : 5+5+5+5

(a) Gross - sectional studies / surveys.

(b) Clinical trial

(c) Probability sampling

(d) Attitude scales and their uses and limitations.

4. (a) Differentiate between the following research tools giving appropriate examples : 6+6

(i) Questionnaire and Tests

(ii) Interviews and observations

(b) A research study was conducted to asses the prevalence of anaemia among male/ female children age 9 months to 2 years in a community. Researchers found that out of 160 children, 12 male and 20 female children, 9 - 12 months, were anaemic, and only 4 male and 8 female were normal. In the age group 13 - 24 months, 40 male and 35 female children were anaemic and 20 male, 12 female children were normal.

(i) Present the data in the form of a three - way contingency table, which presents age distribution of children according to age sex and iron status. **2**

(ii) Calculate the relative risk of female and male children (9 - 12 months) being anaemic. **3**

(iii) Calculate the relative risk among male, female children (13 - 24 months) of being anaemic. **3**

5. In the Research Methods and Biostatistics ferm end exam the marks obtained by 10 male and 10 female students are given here with :

Male student : 45, 72, 60, 32, 15, 80, 59, 65, 29, 50.

Female student : 72, 55, 45, 40, 90, 85, 64, 58, 35, 75.

(a) Calculate the mean, standard deviation and standard error of the difference between means for the two samples. 4+4+4

(b) Determine whether the two groups of male and female students differ in their performance on the term end exam, using the two - tailed test. Test whether the difference is significant. 8

6. (a) What are non-parametric tests ? Indicate the situation when these tests are used. 6

(b) Briefly explain the normal probability distribution, highlighting its characteristics. 6

(c) Enumerate the types of graph you can use for representing frequency distribution. 8

7. (a) The theory and practical marks obtained for the public nutrition course for 10 students is given herewith : 10

Theory : 45, 54, 52, 58, 62, 46, 55, 49, 50, 54.

Practical : 50, 42, 46, 55, 41, 59, 48, 46, 45, 48.

Find out the coorelation between the two variables.

(b) Describe the various mortality and morbidity measures available for use for research purposes. **10**

8. Write short notes on ***any four*** of the following : **5+5+5+5**

(a) Factor analysis and its use in research.

(b) Measures of variability

(c) Rating scales - uses and limitations

(d) Validity and reliability of a research tool

(e) Use of blinding in intervention studies.
