

No. of Printed Pages : 7

MFN-009

**MASTER OF SCIENCE
DIETETICS AND FOOD SERVICE
MANAGEMENT
[M. SC. (DFSM)]**

Term-End Examination

December, 2023

**MFN-009 : RESEARCH METHODS AND
BIostatISTICS**

Time : 3 Hours

Maximum Marks : 100

***Note :** Question No. 1 is compulsory. Answer **five** questions in all. All questions carry equal marks.*

1. Explain the following in 2-3 sentences each :

2×10=20

(a) Snowball sample

P. T. O.

- (b) Hypothesis
 - (c) Nutritional cofidemiology
 - (d) Statistical power
 - (e) Therapeutic trial
 - (f) Usability of a tool
 - (g) Halo effect
 - (h) Contingency tables
 - (i) Degree of freedom
 - (j) Test of significance
2. Anaemia is a major public health problem among children 1-3 years of age in a district in U. P. As a nutrition researcher you are called to carry out a study to test the efficacy of two strategies–Nutrient sufflementation and Food fortification–to combat/prevent anaemia among this population. Develop a research proposal with the following components for

implementation of the strategies to test efficacy :

- | | |
|--|-------|
| (a) Title of research study. | 2 |
| (b) Research objectives/Hypothesis | 4 |
| (c) Methodology : | |
| (i) Research design | 2 |
| (ii) Locale of study | 1 |
| (iii) Sample, sample size and sampling technique | 1+2+2 |
| (iv) Tools and techniques for data collection | 5 |
| (d) Data/Statistical Analysis. | 1 |
3. (a) Define the following and list their strengths and limitations : 5+5
- | | |
|----------------------------|--|
| (i) Cross-sectional survey | |
| (ii) Cohort study | |

- (b) What do you understand by the terms validity and reliability in the context of a research tool ? How would you perform the validity and reliability of a tool ? Explain highlighting the types. 6+4
4. Differentiate between the following sets of terms, giving examples : 5 each
- (a) Discrete and continuous variables
 - (b) Nominal data and ordinal data
 - (c) One-tail and two-tail test of significance
 - (d) Parametric and non-parametric tests
5. Given is the BMI of 8 male subjects and 8 female subjects alternating a health care centre :

BMI

Adult Male	Adult Female
40	22
25	36
22	16
30	40
33	33
36	29
28	34
25	30

- (i) Calculate the mean \pm Standard Deviation score of the 8 male and female subjects. 10
- (ii) Calculate the standard error of mean for the two groups of subjects. 5
- (iii) Calculate the mode and median for the two groups. 5
6. (a) Consider the following bivariate data given herewith :

Weight gain during pregnancy			
Infant Outcome	≤ 8 kg	≥ 8 kg	Total
Dead	181	50	231
Alive	2200	651	2851

Based on the data :

- (i) Calculate the relative risk of infant death in pregnancy with weight gain of less than 8 kg. 7

- (ii) Calculate the odds of dead children being born to pregnant women with weight less than 8 kg as compared to women with weight gain more than 8 kg. 7
- (b) Enlist the characteristics of a normal distribution curve. 6
7. (a) What do you understand by the sensitivity and specificity of a test ? Give the formulae for calculating them. 3+3
- (b) What is product moment correlation measurement ? What does it indicate and how is it assessed ? 6
- (c) What is the significance of *t*-test in research studies ? When is the *t*-test applied and on what parameters ? 4
- (d) When will you use Chi-square test in research ? Give its application and formula. 4

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

5 each

- (a) Cluster sampling
- (b) Indicators of mortality
- (c) How to ensure quality of data
- (d) Graphs for presenting nominal/ordinal data
- (e) ANOVA