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MFN-009

**MASTER OF SCIENCE (FOOD AND
NUTRITION)**

[M. SC. (DFSM)]

Term-End Examination

December, 2022

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

Time : 3 Hours

Maximum Marks : 100

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

1. (a) List any *three* non-probability sampling techniques. 3

- (b) Find the mean and standard deviation of the following data : 5

5, 10, 9, 5, 6, 8, 7, 3, 8, 9

P. T. O.

- (c) Find the range of the distribution presented in (b) above. 2
- (d) What do you understand by Z-score ? What is the cut-off Z-score which is considered low and very low ? 3
- (e) A single 6-sided dice is rolled. What is the probability of rolling (i) even number, (ii) odd number, (iii) each number ? 3
- (f) Give the formula for calculating median of an ungrouped even number scores. 2
- (g) Calculate the mode for the following data : 2

7, 8, 9, 9, 10, 11, 12

2. As part of your dissertation you plan to study the impact of COVID pandemic on the nutritional status and physical activity of school going children. Develop a research proposal with the following heads :
- (a) Title of the study 2

- | | |
|--|---|
| (b) Research objectives | 3 |
| (c) Sample, sample size, sampling method | 5 |
| (d) Research design | 2 |
| (e) Locate of the study | 1 |
| (f) Tools and techniques | 5 |
| (g) Statistical analysis (tools) | 2 |
3. (a) What is an observational study ? Briefly explain the different observational study designs you may adopt for your research, highlighting their strengths and limitations. 12
- (b) Enumerate the issues you would keep in mind while designing and conducting an intervention study. 8
4. (a) What do you understand by the term sampling ? Differentiate between simple random sampling and stratified sampling giving example. 3+7

- (b) “Validity, reliability and usability are three characteristics of a good research tool.”
Justify the statement, highlighting their relevance and usage. 10
5. Explain the following briefly : 5+5+5+5
- (a) Types of interviews and their uses
 - (b) Characteristics of a good questionnaire
 - (c) Various documents useful for scientific study
 - (d) Observation as a tool for data collection
6. (a) Give any *two* examples of any reference values you have come across in your study of dietetics. 2
- (b) Define any *two* indicators related to mortality. 4

- (c) From the 2×2 contingency table given herewith, calculate the “Relative Risk” and “Odds Ratio” : 5+5

Birth Weight (kg)	Mortality		
	Present	Absent	Total
< 2.5	100	20	120
≥ 2.5	40	180	220

- (d) What do you understand by ANOVA ? Highlight its uses. 4
7. (a) What are parametric tests ? Briefly discuss their applications in epidemiological research. 10
- (b) Differentiate between frequency polygon and ogive giving an example. 6
- (c) What do you understand by Degree of Freedom ? Give the formula for calculating degree of freedom. 4

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

5+5+5+5

- (a) Applications of non-parametric tests
- (b) Uses of factor analysis in research
- (c) Hypothesis testing
- (d) Concept of percentiles and their uses for statistical analysis
- (e) Graphs for relation between two variables