

No. of Printed Pages : 4

RFN-001

**Ph. D. (FOOD AND NUTRITION)
(PHDFN)**

Term-End Examination

December, 2022

**RFN-001 : 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. (a) Differentiate between the following :

2×5=10

- (i) Discrete and Continuous variable
 - (ii) Code of Ethics and Plagiarism
 - (iii) Epidemiology and Research
 - (iv) Research objectives and Hypothesis
 - (v) Type I error and Type II error
- (b) As a researcher you are required to calculate the sample size for estimating the prevalence of anaemia among under three

P. T. O.

- children. Give a formula you will use to calculate its sample size for this investigation. 5
- (c) What is normal probability distribution ? Give its characteristics. 5
2. (a) What are descriptive studies ? Explain any *one* descriptive study you would adopt/use at the population level and are study at individual level. 10
- (b) What are the different types of observational studies used in epidemiological research ? Elaborate on these study designs highlighting their strengths. 10
3. Differentiate between probability sampling and non-probability sampling, highlighting the different sampling methods included under each and their strengths and limitations. 20
4. Explain the concept of reliability and validity of a research tool. Explain the process/measures you would use to assess reliability and validity of a tool. 20

5. (a) What are the different ways by which one can graphically present the quantitative data ? Explain briefly giving illustrations.

10

- (b) Briefly explain the following giving examples :

(i) Measures for validity of a diagnostic test 5

(ii) Indicators of child mortality 5

6. Term End Exam marks (Statistics paper) of 10 girls and 7 boys is given out of 20 total marks :

Girls	Boys
10	13
16	14
12	11
13	12
18	15
13	13
19	13
14	
13	
12	

Calculate the mean, median, mode, standard deviation and T-value for the data.

$$2\frac{1}{2}+2\frac{1}{2}+2\frac{1}{2}+2\frac{1}{2}+10=20$$

7. In an urban community large number of children are suffering from malnutrition. You are required to find the prevalence and common causes of malnutrition in this community. Design a research proposal with the following points :

- | | |
|---|---|
| (a) Title of the research study | 2 |
| (b) Research objectives | 3 |
| (c) Sample and research design | 5 |
| (d) Research tools and techniques | 8 |
| (e) Statistical tools for data analysis | 2 |

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

5, 5, 5, 5

- (a) Pearson's correlation and its uses
- (b) Use of odds ratio in research
- (c) Application of Chi-square test
- (d) Use of factor analysis in research
- (e) Measures to adopt to ensure the quality of data collected