

TM142330A

Reg. No.

Name :

**M.Sc. DEGREE (CSS) EXAMINATION, APRIL 2015
SECOND SEMESTER HOME SCIENCE (B) FOOD SCIENCE AND
NUTRITION
HFN2RMS – RESEARCH METHODS AND STATISTICS**

Time: 3 Hours

Maximum Weight: 30

PART A

**I. Answer any *FIVE* questions, not exceeding one page.
Each questions carries a weightage of 1**

1. What is statistical population?
2. What is a probability sample?
3. When is stratified sampling preferred?
4. Write any two properties of Arithmetic Mean.
5. Give two measures of Dispersion.
6. Define Probability Density Function?
7. Define random Variable.
8. What is Critical Region?

(5 x 1 = 5)

PART B

**II. Answer any *FIVE* questions, not exceeding two pages.
Each questions carries a weightage of 2**

9. Distinguish between sampling and non-sampling errors.
10. Discuss different types of Research?
11. Explain quartiles, deciles and percentiles.
12. Explain least squares principle and linear regression.
13. Distinguish between discrete & continuous Random Variables.
14. Explain the terms
(1) Significance Level (2) Power
15. Define a Standard Normal Distribution. Establish its relationship with NormalDistribution.
16. Explain Chi-square test of independence.

(5 x 2 = 10)

PART C

**III. Answer any *THREE* questions, not exceeding three pages.
Each questions carries a weightage of 5**

17. Discuss about identification of research problem.
18. Give various methods of data collection.
19. Calculate the arithmetic mean and standard deviation for the following data of 100 students in a school.

Mark	No. of students
200-250	8
250-300	17
300-350	36
350-400	25
400-450	9
450-650	5

20. The measurements on Cholesterol (X) and triglyceride (Y) levels of 10 individuals are given below. Compute Pearson's correlation coefficient.

	1	2	3	4	5	6	7	8	9	10
X	5.12	6.18	6.77	6.65	6.36	5.90	5.48	6.02	10.34	8.15
Y	2.30	2.54	2.95	3.77	4.18	5.13	5.53	8.83	9.48	14.2

21. The life length of electric bulbs manufactured by a company, has mean 1600 hrs. and SD 30 hrs. What is the probability that an electric bulb selected at random will have length of life (1) less than 1550 hrs (2) between 1550 and 1650 hrs. ?
22. Five measurements on the tar content of a certain kind of cigarette yielded 14.5, 14.2, 14.4, 14.3, and 14.6 mg/cigarette. Assuming the data are a random sample from a normal population, test the hypothesis that the average tar content in the cigarette is 14.0 at 1% level of significance.

(3 x 5 = 15)