Exam.Code:0004
Sub. Code: 0345

2054

B.A./B.Sc. (General) Fourth Semester

Statistics

Paper-203: Sample Surveys, Design and Analysis of Experiments

Time allowed: 3 Hours Max. Marks: 65

NOTE: *Attempt five questions in all, including Question No. I which is compulsory and selecting two questions from each Unit.*

x-x-x

I. Attempt the following:-

a) Mention advantages of sample survey over census survey. (2)

b) Illustrate the layout of an RBD. (2)

c) Compare systematic sampling with simple random sampling. (2)

d) What do you mean by confounding? (2)

e) Define ANOVA and its assumptions. (3)

f) In SRSWOR, prove that the sample mean is an unbiased estimator of population mean. (2)

UNIT - I

II. a) Describe the procedure of drawing a systematic sample. Obtain the variance of the estimator of population mean under systematic sampling method.

b) Define simple random sampling. Differentiate between SRSWOR and SRSWR. (8,5)

III. a) Explain the important points for planning and organization of a sample survey.

b) In SRSWOR, Show that sample mean square is an unbiased estimate of population mean square. (8,5)

IV. a) What are the advantages of Stratified sampling as compared to simple random sampling?

b) Compare the efficiencies of variance under simple, stratified and systematic random sampling methods. (4,9)

V. Describe the methods of allocating a sample to different strata. Obtain the variance of the estimate of the population mean under each allocation and compare them. Also compare them with simple random sampling. (13)

P.T.O.

UNIT - II

VI. Define Latin square design. Give an example of Latin square of order 4. Mention the advantages and disadvantages of a Latin square design. (13)

VII. Write down the model and hypothesis to be used in one way classified data. Analyse one way classified data and form ANOVA table. (13)

VIII. a) Distinguish between symmetrical and asymmetrical factorial experiments.
b) Give the analysis of 2^3 experiment using an RBD. (6,7)

IX. a) Deduce the efficiency of RBD over CRD.
b) What do you understand by the term Experimental Designs.
c) Differentiate between factorial experiments and factorial designs. (6,3,4)

x-x-x