[KV 252] Sub. Code: 2852

M.Sc (BIOSTATISTICS) DEGREE EXAMINATION

FIRST YEAR

Paper II –RESEARCH DESIGNS AND BIOSTATISTICAL INFERENCE - I

Q.P. Code : 282852

Time : Three hours **Maximum : 100 marks**

Answer All questions.

I. Essays: **(2 X 20=40)**

1. a) What do you understand by 'Design of an experiment'. Describe the basic principles of an experimental design.
   b) Write down the advantages of
      i) RBD over CRD ii) LSD over RBD

2. Define i) Critical region and level of significance.
   ii) UMP unbiased test. Iii) Likelihood ratio test

II. Write Short Notes on : **(10X 6 = 60)**

1. What is meant by 'missing plot technique'? Show how to estimate a missing value in a randomized block experiment.
2. What is a Latin square design? Write down the assumptions and applications of a LSD in field experiment.
3. Describe the analysis of variance to an LSD.
4. Describe the principle steps in a sample survey.
5. Define with examples simple random sampling
   i) with replacement ii) without replacement
6. Critically compare and contrast systematic sampling with stratified sampling.
7. What do you understand by point estimation? Write down the properties of a good estimator. Give an example of consistent estimator but not unbiased estimator.
8. Obtain 99% confidence interval for the difference between two population means from small samples.
9. Write down any three application of t, f and x^2 distributions each.
10. Use Neyman Pearson Lemma to obtain the best critical region for testing $\theta = \theta_0$ against $\theta = \theta_1 > \theta_0$, in the case of a normal population $N(\theta, 6^2)$, where 6^2 is known.

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