Roll No. ..... Total Pages : 2

GSM/M-20 **1584**

STATISTICS

(Design of Experiments)

Paper–II (ST–402)

Time Allowed : 3 Hours] [Maximum Marks : 28

Note : Attempt **five** questions in all, selecting at least **one** question from each Unit. Question No. **1** is compulsory. All questions carry equal marks.

Compulsory Question

1. (i) What is meant by 'Design of an Experiment' ?

(ii) Define a treatment in reference to an experiment.

(iii) What are the advantages of factorial designs ?

(iv) Why a 2×2 Latin square design is not used ?

(v) Define ANOVA.

UNIT–I

2. Give a complete analysis of two-way classified data with one observation per cell.

3. What are the assumptions made in Analysis of variance ? Writing model, set up ANOVA for one-way classification.

UNIT–II

4. Define Randomization and Replication. What purpose do they serve in design of experiments ?

5. Write any **three** short notes on the following :

   (a) Size and shape of plots and blocks.

   (b) Uniformity Trail.

   (c) Local control.

   (d) Precision and efficiency of a design.

UNIT–III

6. Give the layout and analysis of a Completely Randomized Design (CRD). Explain its advantages and disadvantages.

7. What is Randomized Block Design (RBD) ? Give layout of a RBD with 5 treatments and 4 blocks. How will you find the efficiency of RBD relative to CRD ?

UNIT–IV

8. Define factorial experiments. Why these are considered better then the experiments in which the factors are tried one by one ? What are the disadvantages of factorial experiments ?

9. Give the layout and method of analysis of Latin Square Design.