(ii)   Questions   : 9   **Sub. Code :** | 1 | 0 | 5 | 1 | 1 |

Exam. Code : | 5 | 0 | 0 | 2 |

Bachelor of Arts (FYUP) 2nd Semester
(2055)
STATISTICS
Paper : Statistics–II

Time Allowed : Three Hours]   **[Maximum Marks : 60**

Note :— There are in all **nine** questions, all are of equal marks. The **first** question is compulsory. The candidate will be required to attempt **five** questions in all, including the compulsory **first** question and **two** questions from each unit.

1. (a) Differentiate population and sample.

   (b) What are the assumptions for the validity of t-test ?

   (c) Describe the technique of analysis of variance.

   (d) What is the difference between size of the test and level of significance ?

UNIT—I

2. What is meant by a statistical hypothesis ? What are the two types of errors of decision that arise in testing of hypothesis ? Briefly explain how a statistical hypothesis is tested.

3. Discuss the conditions under which stratified sampling is better than simple random sampling. Point out a situation for the use of stratified random sampling.

4. In a random sample of 600 men from a particular district of MP, 300 are found to be smokers. In one of 900 men from another district, 500 are smokers. Do the data indicate that the two districts are significantly different with respect to the prevalence of smoking among men ? (Z_{tab} at 5% level is 1.96)

5. In a sample of 1000 people, exactly 620 are in sports profession and rests are teaching person. Can we claim that sports and teaching both are equally acceptable in this society ? Give your conclusion at (i) 1% level of significance and (ii) 5% level of significance. (Z_{tab} at 1% and 5% level are 2.58 and 1.96)

UNIT—II

6. What is a test of significance ? Write a short note on Student's t test and point out its uses.

7. State the mathematical model used in analysis of variance in a two-way classification. Explain the hypothesis to be tested. Discuss the advantages of this method over one way classification.

8. In an experiment on immunization of cats from tuberculosis, the following data were obtained :

	Affected	Non-Affected
Inoculated	83	67
Not inoculated	50	73

Examine the effect of vaccine in controlling the incidence of the disease. ($X^2_{1, (0.05)} = 3.841$)

9. Three types of fertilizers are used on three groups of plants for 5 weeks. Check if there is a difference in the mean growth of each group at 0.05 significant level.

Fertilizer 1	Fertilizer 2	Fertilizer 3
6	8	13
8	12	9
4	9	11
5	11	8
3	6	7
4	8	12

($F_{2,16}$ for $0.05 = 3.63$)