(i) Printed Pages: 3   Roll No. ....

(ii) Questions : 9   Sub. Code : | 0 | 6 | 6 | 8 |

Exam. Code : | 0 | 0 | 0 | 8 |

B.A./B.Sc. (Hons.) 4ᵗʰ Semester

(2054)

ECONOMICS

Paper–III : Theory of Statistics

Time Allowed : Three Hours]   [Maximum Marks : 90

Note :—(1) Attempt any **NINE** short answer questions out of 1ˢᵗ Question of **2** marks each.

(2) Attempt any **ONE** question from each Unit of **18** marks each.

1. Attempt any **NINE** questions :

(a) Partial Correlation.

(b) Properties of Growth Curve.

(c) Random Variable.

(d) Statistics.

(e) Point Estimation.

(f) Chebychev's Inequality.

(g) Uses of Poisson Distribution.

(h) Formula for estimating Mean and Standard Deviation in case of Binomial Distribution.

(i) Sign Test.

(j) Benefits of Statistical Quality Control.

(k) Mention Assumptions of ANOVA.

(l) Difference between Two Tailed Test and One Tailed Test. $9 \times 2 = 18$

UNIT—I

2. State and prove :

(a) Addition Theorem of Probability.

(b) Multiplication Theorem in case of independent and dependent events. $9+9=18$

3. Find the least square regression of X_1 and X_2, using Actual Mean method. Also estimate X_3 when $X_1 = 10$ and $X_2 = 6$.

X_1	3	5	6	8	12	14
X_2	16	10	7	4	3	2
X_3	90	72	54	42	30	12

18

UNIT—II

4. Mr. Sam can hit the target 3 out of 5 shots, Mr. George can hit the target 4 out of 5 shots, Mr. Henry can hit the same target 3 out of 4 shots; they fire at a common point. What is the probability of hitting :

(a) Exactly 2 shots

(b) At least 1 shot

(c) At least 2 shots ?   18

5. In a factory, weights of 400 workers were found to be normally distributed with average weight of 60 kgs and S.D. of 5 kgs. Find the number of workers with weights :

(a) Less than 46 kgs

(b) Between 45 kgs and 60 kgs

(c) Mor than 63 kgs.   18

UNIT—III

6. (a) Differentiate between Type I Error and Type II Error.

(b) Rejection Region.

(c) Level of Significance. $9+4\frac{1}{2}+4\frac{1}{2}=18$

7. What is Sampling ? Discuss various techniques of sampling.   18

UNIT—IV

8. Discuss various Small Sample Tests.   18

9. Before an Increase in Excise Duty on Coffee, 400 persons out of sample of 500 persons were found to be coffee drinkers. After an increase in Excise Duty, 400 persons were known to be coffee drinkers in a sample of 600 persons. Do you think there has been a significant decrease in consumption of coffee after increase in Excise Duty ? (At 5% Level of significance the critical value of $Z = 1.645$).   18