[This question paper contains 3 printed pages.]

1053 *Your Roll No. .....*

B.Sc. (Hons.) / II **C**

STATISTICS – Paper XIV

B–226 : (Applied Statistics – II)

(Admissions of 1999 and onwards)

Time : 2 Hours *Maximum Marks : 38*

(Write your Roll No. on the top immediately on receipt of this question paper.)

Attempt **five** *questions in all, including Question No.* **1** *which is compulsory.*

1. Distinguish between :

   (i) Reliability and validity

   (ii) Additive and multiplicative models of time series

   (iii) Process and product control (2+2+2)

2. (a) Which component of Time Series is mainly applicable in the following cases. Also give reasons for your answer.

P.T.O.

(i) The increase of sale of sugar during the festival season

(ii) An era of prosperity

(iii) Issue of library books during examinations

(iv) Increase of literacy rate in developing country

(b) Name different methods for determining seasonal fluctuations of a time-series. Describe ratio to trend method along with its merits and demerits. (4,4)

3. (a) Discuss the effect of test of length on the reliability of the test. A certain test has a reliability coefficient of 0.70. Find its reliability when its length is doubled.

(b) Describe a method for estimating the variance of the random component in a time- series with its significance. Also state assumptions under which it is applicable. (4,4)

4. (a) Define auto – regressive series. Describe first order auto – regression. Also define auto – correlation and correlogram.

(b) What do you mean by control charts for variables ? Explain different steps to obtain control limits for R-Chart. (4,4)

5. (a) Define Acceptance Quality Level and lot tolerance proportion defectives. Obtain OC function for the single sampling plan.

(b) How are control limits for c – chart obtained ? Justify the distribution used by you for the derivation of the above control limits. (4,4)

6. Write notes on the following :

(i) Double sampling plan

(ii) Intelligence quotient

(iii) Scaling of ratings in terms of Normal curve

(iv) Comparison of T-scores and standard scores (8)