# MATHÉMATIQUES

Rapport Technique EP75-R-42

Classification: Library of Congress no

# POWER STUDIES OF THE LIKELIHOOD RATIO TEST AND OTHER ALLIED TESTS FOR A RESTRICTIVE FORM OF THE BEHRENS-FISHER PROBLEM

par

BERNARD CLEMENT

Août 1975

Ecole Polytechnique de Montréal

CA2PQ
UP4
75R42

Campus de l'Université
de Montréal
Case postale 6079
Succursale 'A'
Montréal, Québec
H3C 3A7

Bibliothèque
Ecole
Polytechnique
MONTRÉAL

CLASSIFICATION

No D'ENTRÉE
77764

17 OCT 1975

A CONSULTER
SUR PLACE

# POWER STUDIES OF THE LIKELIHOOD RATIO TEST AND OTHER ALLIED TESTS FOR A RESTRICTIVE FORM OF THE BEHRENS-FISHER PROBLEM

by

Bernard CLEMENT*
Ecole Polytechnique

## SUMMARY

This technical report (together with technical reports EP75-R-40 and EP75-R-41) constitutes our final analysis of the Behrens-Fisher problem under the assumption of equal coefficients of variation. In this report we compare, by simulation technique, the power of five statistical tests, two of which were derived in the first report: the likelihood ratio (L-R) test and an asymptotically (in some sense) invariant test.

It is seen that the L-R test is highly satisfactory for all values of the coefficient of variation and that the invariant test, which is computationally much simpler than the L-R test, is a good competitor for coefficient of variation greater then or equal to 3. Moreover the L-R test remains robust even for an appreciable deviation from unity of the ratio of two coefficients of variation.

77764

---

* **Work supported by the National Research Concil of Canada, Grant A-8728.**

## THEORY

Let $\{X_{ij}\ ,\ j = 1,2,\ldots,n_i\}$ be a random sample of size $n_i$ from a univariate population $N(\mu_i, \beta^2\mu_i^2 = \sigma_i^2)$ $i = 1,2$. The coefficient of variation $\beta$ is unknown and we assume the means $\mu_1, \mu_2$, both positive.

Several parametric statistical tests can be used to test $H_0: \mu_1 = \mu_2 = \mu\ (>0)$ against $H_1: \mu_1 = \mu_2$. In this report, we study the power of five statistical tests: t-test, F-test, t'-test, likelihood ratio test (LR) and the U-test. The last two tests are new and were derived by Clement and Sinha (1975). Here is a brief description of each test.

t-test: reject $H_0$ at $\alpha$-level if

$$\frac{|\bar{X}_1 - \bar{X}_2|}{S_p\sqrt{\frac{1}{n_1} + \frac{1}{n_2}}} > t_{n_1+n_2-2,\frac{\alpha}{2}} \tag{1}$$

where

$$\bar{X}_i = \frac{1}{n_i}\sum_{j=1}^{n_i} X_{ij} \quad , \quad i = 1,2 \tag{2}$$

$$S_p^2 = \frac{1}{n_1+n_2-2}\,[n_1S_1^2 + n_2S_2^2] \tag{3}$$

$$S_i^2 = \frac{1}{n_i}\sum_{j=1}^{n_i} (X_{ij} - \bar{X}_i^2) \quad , \quad i = 1,2 \tag{4}$$

$t_{n_1+n_2-2,\frac{\alpha}{2}}$ is the $1-\frac{\alpha}{2}$ percentage point of a Student-t distribution with $n_1+n_2-2$ d.f.

F-test: reject $H_0$ at $\alpha$-level if

$$\frac{n_1S_1^2/n_1-1}{n_2S_2^2/n_2-1} > F^{n_1-1}_{n_2-1}(\tfrac{\alpha}{2}) \quad \text{or} \quad < F^{n_1-1}_{n_2-1}(1-\tfrac{\alpha}{2})$$

where $S_i^2$ is defined by (4) and $F^{n_1-1}_{n_2-1}(\frac{\alpha}{2})$ is the $1-\frac{\alpha}{2}$ percentage point of a Fisher-Snedecor F-distribution with $n_1-1$ d.f. in the numerator and $n_2-1$ d.f. in the dominator.

t'-test (Fryer): reject $H_0$ at α-level if

$$t' = \frac{|\bar{X}_1 - \bar{X}_2|}{\sqrt{\frac{S_1^2}{n_1-1} + \frac{S_2^2}{n_2-1}}} > t'_{\frac{\alpha}{2}}$$

where

$$t'_{\frac{\alpha}{2}} = \omega_1 t_{n_1-1,\frac{\alpha}{2}} + \omega_2 t_{n_2-1,\frac{\alpha}{2}}$$

$$\omega_1 = \frac{S_1^2/n_1-1}{S_1^2/n_1-1 + S_2^2/n_2-1}, \quad \omega_2 = 1-\omega_1$$

L-R test (Clement and Sinha): reject $H_0$ at α-level if

$$-2 \log \lambda > \lambda_\alpha$$

where

$$\lambda = [S_1^2 + A_1]^{n_1/2} [S_2^2 + A_2]^{n_2/2} [S^2]^{-(n_1+n_2)/2}$$

$$A_1 = n_2[(n_1+n_2)\bar{X}_1^2(X_2^2 + 2S_2^2) - \sqrt{n_1+n_2}\,\bar{X}_1\bar{X}_2 B]/2(n_1+n_2)\{n_1\bar{X}_2^2 + (n_1+n_2)S_2^2\}$$

$$A_2 = n_1[(n_1+n_2)\bar{X}_2^2(\bar{X}_1^2 + 2S_1^2) - \sqrt{n_1+n_2}\,\bar{X}_1\bar{X}_2 B]/2(n_1+n_2)\{n_2\bar{X}_1^2 + (n_1+n_2)S_1^2\}$$

$$B = \{(n_1+n_2)\bar{X}_1^2\bar{X}_2^2 + 4n_2\bar{X}_1^2 S_2^2 + 4n_1\bar{X}_2^2 S_1^2 + 4(n_1+n_2)S_1^2 S_2^2\}^{\frac{1}{2}}$$

and $\lambda_\alpha$ is the $1-\alpha$ percentage point that can be found in tables prepared by Clement and Sinha. The test is refered to as LAMDA in the tables.

U-test (Clement and Sinha): Under the assumption of large common homogeneous coefficient of variation, the approximate most powerful unbiased invariant test is: reject $H_0$ at $\alpha$-level if

$$\left\{ \sum_{j=1}^{n_1} X_{ij}^2 / n_1 \right\} \Big/ \left\{ \sum_{j=1}^{n_2} X_{ij}^2 / n_2 \right\} > F_{n_2}^{n_1}\left(\frac{\alpha}{2}\right) \quad \text{or} < F_{n_2}^{n_1}\left(1-\frac{\alpha}{2}\right)$$

## TABLES FOR POWER STUDIES

The tables have a standard format which is self explanatory. We find the:

Sample sizes: N1, N2

Means: MU1, MU2

Standard deviations: SIGMA1, SIGMA2

Coefficients of variation: BETA1, BETA2

Two other parameters are noted

THETA = MU1/MU2

PSI = BETA1/BETA2

The parameter PSI is designed to study the robustness of the L-R test when relaxing the assumption of homogeneous coefficients of variation and has proved extremely helpful.

The number of rejections, out of 100 samples, simulated with the given populations parameters, is given for each test. 90 such tables are presented. Several tables have been repeated with 1000 samples. These tables are: 5A, 14A, 15A, 24A, 25A, 27A, 35A, 36A, 37A and they can be distinguished by smaller printing caracters.

Sample sizes used are:

N1 = 10 , N2 = 10 , table 1 to table 38

N1 = 2 , N2 = 4 , table 39 to table 51

N1 = 6 , N2 = 10 , table 52 to table 64

N1 = 6 , N2 = 20 , table 65 to table 77

N1 = 10 , N2 = 20 , table 78 to table 90

For sample sizes $(N_1, N_2) = (2,4), (6,10), (6,20), (10,20)$ the same set of population parameters are used and they correspond to a subset of population parameters of the first 38 tables.

Many cross-references can be made between the tables and in order to facilitate this process, we give here the description of each table.

| Table no | N1 | N2 | $\mu_1$ | $\mu_2$ | $\sigma_1$ | $\sigma_2$ | $\beta_1$ | $\beta_2$ | $\theta$ | PSI |
|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 10 | 10 | 8 | 10 | 2 | 2.5 | 0.25 | 0.25 | 0.8 | 1 |
| 2 | | | 2 | 6 | 1 | 3 | 0.5 | 0.5 | 0.33 | 1 |
| 3 | | | 2.67 | 4.67 | 2 | 3.5 | 0.75 | 0.75 | 0.57 | 1 |
| 4 | | | 2 | 4 | 2 | 4 | 1 | 1 | 0.5 | 1 |
| 5 | | | 1 | 3 | 2 | 6 | 2 | 2 | 0.33 | 1 |
| 5A | | | same as table 5 but with 1000 samples | | | | | | | |
| 6 | | | 1 | 1 | 2 | 4 | 2 | 4 | 1 | 0.5 |
| 7 | | | 8 | 10 | 2 | 2 | 0.25 | 0.20 | 0.8 | 1.25 |
| 8 | same | | 1 | 2 | 2 | 1 | 2 | 0.5 | 0.5 | 4 |
| 9 | as | | 1 | 3 | 2 | 2.5 | 2 | 0.83 | 0.33 | 2.40 |
| 10 | above | | 4 | 6 | 2 | 2.5 | 0.5 | 0.42 | 0.67 | 1.20 |
| 11 | | | 1 | 3 | 2 | 4 | 2 | 1.33 | 0.33 | 1.50 |
| 12 | | | 1 | 1 | 2 | 2 | 2 | 2 | 1 | 1 |
| 13 | | | 1 | 1 | 0.5 | 0.5 | 0.5 | 0.5 | 1 | 1 |
| 14 | | | 1 | 2 | 3 | 6 | 3 | 3 | 2 | 1 |
| 14A | | | same as table 14 but with 1000 samples | | | | | | | |

| Table no | N1 | N2 | $\mu_1$ | $\mu_2$ | $\sigma_1$ | $\sigma_2$ | $\beta_1$ | $\beta_2$ | $\theta$ | PSI |
|---|---|---|---|---|---|---|---|---|---|---|
| 15 | 10 | 10 | 1 | 2 | 4 | 8 | 4 | 4 | 0.5 | 1 |
| 15A | | | same as table 15 but with 1000 samples | | | | | | | |
| 16 | | | 1 | 0.5 | 4 | 2 | 4 | 4 | 2 | 1 |
| 17 | | | 1 | 5 | 5 | 25 | 5 | 5 | 0.2 | 1 |
| 18 | | | 1 | 1.2 | 10 | 12 | 10 | 10 | 0.8 | 1 |
| 19 | | | 0.95 | 1 | 0.475 | 0.5 | 0.5 | 0.5 | 0.95 | 1 |
| 20 | | | 0.8 | 0.6 | 4 | 3 | 5 | 5 | 1.33 | 1 |
| 21 | | | 0.6 | 0.2 | 3.6 | 1.2 | 6 | 6 | 3 | 1 |
| 22 | | | 1 | 1.5 | 2 | 3 | 2 | 2 | 0.67 | 1 |
| 23 | | | 2 | 1.5 | 1 | 3 | 0.5 | 2 | 1.33 | 0.25 |
| 24 | | | 1 | 0.5 | 3 | 1.5 | 3 | 3 | 2 | 1 |
| 24A | | | same as table 24 but with 1000 samples | | | | | | | |
| 25 | | | 0.75 | 0.5 | 2.25 | 1.5 | 3 | 3 | 1.5 | 1 |
| 25A | | | same as table 25 but with 1000 samples | | | | | | | |
| 26 | same | | 1 | 0.5 | 4 | 2 | 4 | 4 | 2 | 1 |
| 27 | as | | 0.75 | 0.5 | 3 | 2 | 4 | 4 | 1.5 | 1 |
| 27A | above | | same as table 27 but with 1000 samples | | | | | | | |
| 28 | | | 0.75 | 0.5 | 3.75 | 2.5 | 5 | 5 | 1.5 | 1 |
| 29 | | | 0.5 | 1.5 | 1 | 3 | 2 | 2 | 0.33 | 1 |
| 30 | | | 1 | 2 | 0.05 | 0.10 | 0.05 | 0.05 | 0.5 | 1 |
| 31 | | | 1 | 2 | 0.10 | 0.20 | 0.10 | 0.10 | 0.5 | 1 |
| 32 | | | 1 | 2 | 0.15 | 0.30 | 0.15 | 0.15 | 0.5 | 1 |
| 33 | | | 1 | 1.5 | 0.2 | 0.3 | 0.20 | 0.20 | 0.33 | 1 |
| 34 | | | 1 | 2 | 0.5 | 1.2 | 0.5 | 0.6 | 0.5 | 0.83 |
| 35 | | | 1 | 2 | 1 | 4 | 1 | 2 | 0.5 | 0.5 |
| 35A | | | same as table 35 but with 1000 samples | | | | | | | |
| 36 | | | 1 | 2 | 1.5 | 2 | 1.5 | 1 | 0.5 | 1.5 |
| 36A | | | same as table 36 but with 1000 samples | | | | | | | |
| 37 | | | 1 | 2 | 1 | 3 | 1 | 1.5 | 0.5 | 0.67 |
| 37A | | | same as table 37 but with 1000 samples | | | | | | | |
| 38 | | | 1 | 2 | 2 | 2 | 2 | 1 | 0.5 | 2 |

| Table no | N1 | N2 | $\mu_1$ | $\mu_2$ | $\sigma_1$ | $\sigma_2$ | $\beta_1$ | $\beta_2$ | $\theta$ | PSI |
|---|---|---|---|---|---|---|---|---|---|---|
| 39 | 2 | 4 | same as in table 1 | | | | | | | |
| 40 | | | " " " " 4 | | | | | | | |
| 41 | | | " " " " 6 | | | | | | | |
| 42 | | | " " " " 7 | | | | | | | |
| 43 | | | " " " " 10 | | | | | | | |
| 44 | same | | " " " " 11 | | | | | | | |
| 45 | as | | " " " " 14 | | | | | | | |
| 46 | above | | " " " " 20 | | | | | | | |
| 47 | | | " " " " 31 | | | | | | | |
| 48 | | | " " " " 34 | | | | | | | |
| 49 | | | " " " " 35 | | | | | | | |
| 50 | | | " " " " 36 | | | | | | | |
| 51 | | | " " " " 38 | | | | | | | |
| 52 | 6 | 10 | " " " " 1 | | | | | | | |
| 53 | | | " " " " 4 | | | | | | | |
| 54 | | | " " " " 6 | | | | | | | |
| 55 | | | " " " " 7 | | | | | | | |
| 56 | | | " " " " 10 | | | | | | | |
| 57 | same | | " " " " 11 | | | | | | | |
| 58 | as | | " " " " 14 | | | | | | | |
| 59 | above | | " " " " 20 | | | | | | | |
| 60 | | | " " " " 31 | | | | | | | |
| 61 | | | " " " " 34 | | | | | | | |
| 62 | | | " " " " 35 | | | | | | | |
| 63 | | | " " " " 36 | | | | | | | |
| 64 | | | " " " " 38 | | | | | | | |
| 65 | 6 | 20 | " " " " 1 | | | | | | | |
| 66 | | | " " " " 4 | | | | | | | |
| 67 | same | | " " " " 6 | | | | | | | |
| 68 | as | | " " " " 7 | | | | | | | |
| 69 | above | | " " " " 10 | | | | | | | |

| Table no | N1 | N2 | $\mu_1$ | $\mu_2$ | $\sigma_1$ | $\sigma_2$ | $\beta_1$ | $\beta_2$ | $\theta$ | PSI |
|---|---|---|---|---|---|---|---|---|---|---|
| 70 | 6 | 20 | same | as in | table 11 | | | | | |
| 71 | | | " | " " | " 14 | | | | | |
| 72 | same | | " | " " | " 20 | | | | | |
| 73 | as | | " | " " | " 31 | | | | | |
| 74 | above | | " | " " | " 34 | | | | | |
| 75 | | | " | " " | " 35 | | | | | |
| 76 | | | " | " " | " 36 | | | | | |
| 77 | | | " | " " | " 38 | | | | | |
| 78 | 10 | 20 | " | " " | " 1 | | | | | |
| 79 | | | " | " " | " 4 | | | | | |
| 80 | | | " | " " | " 6 | | | | | |
| 81 | | | " | " " | " 7 | | | | | |
| 82 | | | " | " " | " 10 | | | | | |
| 83 | same | | " | " " | " 11 | | | | | |
| 84 | as | | " | " " | " 14 | | | | | |
| 85 | above | | " | " " | " 20 | | | | | |
| 86 | | | " | " " | " 31 | | | | | |
| 87 | | | " | " " | " 34 | | | | | |
| 88 | | | " | " " | " 35 | | | | | |
| 89 | | | " | " " | " 36 | | | | | |
| 90 | | | " | " " | " 38 | | | | | |

## SOME CONCLUSIONS

Extensive study of the tables indicates that the L-R test has the following remarkable properties.

1) Lohrding stated, for the equal sample size case $(n_1 = n_2)$, that the L-R test was good only for the coefficient of variation between 0.25 to 1.0. Contrary to Lohrding's conclusion the L-R test indicates maximum power for all values of the common coefficient of variation. Moreover the same conclusion holds true for equal and unequal sample sizes alike. This is confirmed by table 1, 2, 3, 4, 5, 14, 15, 16, 17, 18, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 39, 40, 45, 47, 52, 53, 58, 60, 65, 66, 71, 72, 78, 79, 84, 86.

2) This is not to say that other tests do not achieve the same power as the L-R test but they do so only under some restrictive conditions.

   Such is the case when the standard deviations are nearly equal for the t-test: table 1, 7, 10, 19, 30, 31, 32, 33, 36, 38, 39, 42, 43, 47, 50, 51, 52, 55, 56, 60, 63, 64, 65, 68, 69, 73, 76, 77, 78, 81, 82, 86, 89, 90.

   Such is the case when the standard deviations are widely different for the F-test: table 5, 6, 14, 15, 16, 17, 21, 22, 24, 26, 27, 28, 29, 37, 41, 45, 54, 58, 67, 71, 80, 84.

3) Another very important finding is that the L-R ratio test remains robust when relaxing the assumption of equal coefficient of variation. As a practical rule the L-R test remains robust in the range $0.67 \leqslant \text{PSI} \leqslant 1.50$ where $\text{PSI} = \beta_1/\beta_2$. This is supported by table 7, 10, 11, 34, 36, 37, 42, 43, 44, 48, 50, 55, 57, 61, 63, 68, 69, 70, 74, 76, 81, 82, 83, 89.

4) However, if the common coefficient of variation is greater than or equal to 3, the approximately optimum most powerful invariant test (U-test) has nearly the same power as the L-R test. This is evident from table 12, 14, 15, 16, 17, 18, 24, 25, 26, 27, 28, 29, 45, 58, 71, 84. But since the former is computationally much simpler that the latter, we advocate its use whenever the common coefficient is greater than 3.

## ACKNOWLEDGEMENT

Our thanks are due to H.Q. Lam for his assistance with the computer programming.

## REFERENCES

1- CLEMENT, B. and SINHA, B.K. (1975), "Behrens-Fisher Problem Under the Assumption of Homogeneous Coefficients of Variation", Technical report EP75-R-40, Ecole Polytechnique,

2- CLEMENT, B. (1975), "The Approximate Distribution of the Likelihood Ratio Test for Testing the Equality of Means with Equal Coefficients of Variation", Technical report EP75-R-41, Ecole Polytechnique,

3- FRYER, H.C. (1966), "Concepts and Methods of Experimental Statistics", Allyn and Bacon, Boston.

4- LOHRDING, R.K. (1969), "A Test of Equality of Two Normal Population Means Assuming Homogeneous Coefficients of Variation", Ann. Math. Statist. 40, 1374-1385.

```
                 ******************
                 *  TABLE  NO  1  *
                 ******************

     TOTAL NUMBER OF REJECTION OUT OF 100 SAMPLES
     SIMULATED WITH THE GIVEN POPULATION PARAMETERS
     FOR 2 SAMPLES OF SIZE

      N1= 10                            N2= 10

     MU1= 8.000                        MU2=10.000

  SIGMA1= 2.000                     SIGMA2= 2.500

BETA1=SIGMA1/MU1= 0.250         BETA2=SIGMA2/MU2= 0.250

  THETA=MU1/MU2= 0.800         PSI=BETA1/BETA2= 1.000

***************************************************
*                *          ALPHA-LEVEL           *
* TEST STATISTIC **********************************
*                *   0.01   *  0.05    *  0.10    *
***************************************************
*     LAMBDA     *    28    *    51    *    66    *
***************************************************
*       U        *     0    *     0    *     0    *
***************************************************
*       F        *     0    *     3    *    10    *
***************************************************
*       T        *    23    *    49    *    65    *
***************************************************
*     TPRIME     *    11    *    45    *    62    *
***************************************************
```

```
                    ******************
                    *  TABLE  NO  2  *
                    ******************

        TOTAL NUMBER OF REJECTION OUT OF 100 SAMPLES
        SIMULATED WITH THE GIVEN POPULATION PARAMETERS
        FOR 2 SAMPLES OF SIZE

         N1= 10                              N2= 10

        MU1= 2.000                          MU2= 6.000

     SIGMA1= 1.000                       SIGMA2= 3.000

   BETA1=SIGMA1/MU1= 0.500           BETA2=SIGMA2/MU2= 0.500

     THETA=MU1/MU2= 0.333            PSI=BETA1/BETA2= 1.000

   **********************************************************
   *                  *            ALPHA-LEVEL              *
   * TEST STATISTIC   ***************************************
   *                  *   0.01    *   0.05    *   0.10      *
   **********************************************************
   *     LAMBDA       *   100     *   100     *   100       *
   **********************************************************
   *       U          *    87     *   100     *   100       *
   **********************************************************
   *       F          *    65     *    88     *    94       *
   **********************************************************
   *       T          *    86     *    96     *    99       *
   **********************************************************
   *     TPRIME       *    72     *    94     *    98       *
   **********************************************************
```

```
                         ******************
                         *  TABLE  NO  3  *
                         ******************

              TOTAL NUMBER OF REJECTION OUT OF 100 SAMPLES
              SIMULATED WITH THE GIVEN POPULATION PARAMETERS
              FOR 2 SAMPLES OF SIZE

                N1= 10                                N2= 10

              MU1= 2.670                            MU2= 4.670

            SIGMA1= 2.000                         SIGMA2= 3.500

          BETA1=SIGMA1/MU1= 0.750             BETA2=SIGMA2/MU2= 0.750

            THETA=MU1/MU2= 0.570             PSI=BETA1/BETA2= 1.000


          *************************************************************
          *                  *           ALPHA-LEVEL                  *
          *  TEST STATISTIC  ******************************************
          *                  *    0.01    *    0.05    *    0.10    *
          *************************************************************
          *      LAMBDA      *     24     *     53     *     64     *
          *************************************************************
          *        U         *      4     *     22     *     40     *
          *************************************************************
          *        F         *     13     *     30     *     45     *
          *************************************************************
          *        T         *     13     *     29     *     36     *
          *************************************************************
          *      TPRIME      *      4     *     25     *     33     *
          *************************************************************
```

```
                    ******************
                    *  TABLE  NO  4  *
                    ******************

            TOTAL NUMBER OF REJECTION OUT OF 100 SAMPLES
            SIMULATED WITH THE GIVEN POPULATION PARAMETERS
            FOR 2 SAMPLES OF SIZE

              N1= 10                               N2= 10

             MU1= 2.000                           MU2= 4.000

          SIGMA1= 2.000                        SIGMA2= 4.000

        BETA1=SIGMA1/MU1= 1.000          BETA2=SIGMA2/MU2= 1.000

          THETA=MU1/MU2= 0.500           PSI=BETA1/BETA2= 1.000

        ************************************************
        *                  *         ALPHA-LEVEL       *
        * TEST STATISTIC  ******************************
        *                  *  0.01  *  0.05  *  0.10  *
        ************************************************
        *    LAMBDA       *   38   *   69   *   84    *
        ************************************************
        *       U         *   25   *   53   *   68    *
        ************************************************
        *       F         *   21   *   49   *   67    *
        ************************************************
        *       T         *   10   *   25   *   47    *
        ************************************************
        *    TPRIME       *    4   *   19   *   38    *
        ************************************************
```

```
                 ******************
                 *  TABLE  NO  5  *
                 ******************

    TOTAL NUMBER OF REJECTION OUT OF 100 SAMPLES
    SIMULATED WITH THE GIVEN POPULATION PARAMETERS
    FOR 2 SAMPLES OF SIZE

       N1= 10                              N2= 10

      MU1= 1.000                          MU2= 3.000

   SIGMA1= 2.000                       SIGMA2= 6.000

 BETA1=SIGMA1/MU1= 2.000          BETA2=SIGMA2/MU2= 2.000

   THETA=MU1/MU2= 0.333         PSI=BETA1/BETA2= 1.000

 ***************************************************
 *                *         ALPHA-LEVEL            *
 * TEST STATISTIC **********************************
 *                *   0.01  *   0.05   *   0.10    *
 ***************************************************
 *     LAMBDA     *    76   *    97    *    97     *
 ***************************************************
 *       U        *    74   *    95    *    98     *
 ***************************************************
 *       F        *    69   *    86    *    94     *
 ***************************************************
 *       T        *     6   *    19    *    28     *
 ***************************************************
 *     TPRIME     *     2   *    14    *    23     *
 ***************************************************
```

```
                   *******************
                   *  TABLE NO  5A   *
                   *******************

          TOTAL NUMBER OF REJECTION OUT OF 1000 SAMPLES
          SIMULATED WITH THE GIVEN POPULATION PARAMETERS
          FOR 2 SAMPLES OF SIZE

           N1= 10                              N2= 10

          MU1= 1.000                         MU2= 3.000

       SIGMA1= 2.000                      SIGMA2= 6.000

     BETA1=SIGMA1/MU1= 2.000          BETA2=SIGMA2/MU2= 2.000

       THETA=MU1/MU2= 0.333          PSI=BETA1/BETA2= 1.000

     *******************************************************
     *                 *           ALPHA-LEVEL            *
     * TEST STATISTIC **************************************
     *                 *    0.01   *    0.05   *    0.10    *
     *******************************************************
     *     LAMBDA      *    753    *    926    *   961     *
     *******************************************************
     *        U        *    729    *    919    *   953     *
     *******************************************************
     *        F        *    662    *    870    *   928     *
     *******************************************************
     *        T        *     54    *    153    *   254     *
     *******************************************************
     *     TPRIME      *     20    *    118    *   208     *
     *******************************************************
```

```
                         ******************
                         *  TABLE  NO  6  *
                         ******************

              TOTAL NUMBER OF REJECTION OUT OF 100 SAMPLES
              SIMULATED WITH THE GIVEN POPULATION PARAMETERS
              FOR 2 SAMPLES OF SIZE

               N1= 10                               N2= 10

              MU1= 1.000                           MU2= 1.000

           SIGMA1= 2.000                        SIGMA2= 4.000

        BETA1=SIGMA1/MU1= 2.000           BETA2=SIGMA2/MU2= 4.000

           THETA=MU1/MU2= 1.000         PSI=BETA1/BETA2= 0.500

        ***********************************************************
        *              *            ALPHA-LEVEL                   *
        * TEST STATISTIC ******************************************
        *              *   0.01    *   0.05    *   0.10    *
        ***********************************************************
        *    LAMBDA    *    19     *    47     *    63     *
        ***********************************************************
        *      U       *    13     *    44     *    65     *
        ***********************************************************
        *      F       *    22     *    47     *    62     *
        ***********************************************************
        *      T       *     1     *     3     *    12     *
        ***********************************************************
        *    TPRIME    *     0     *     2     *     6     *
        ***********************************************************
```

```
                    *****************
                    *  TABLE  NO  7  *
                    *****************

        TOTAL NUMBER OF REJECTION OUT OF 100 SAMPLES
        SIMULATED WITH THE GIVEN POPULATION PARAMETERS
        FOR 2 SAMPLES OF SIZE

          N1= 10                             N2= 10

         MU1= 8.000                         MU2=10.000

      SIGMA1= 2.000                      SIGMA2= 2.000

   BETA1=SIGMA1/MU1= 0.250          BETA2=SIGMA2/MU2= 0.200

     THETA=MU1/MU2= 0.800           PSI=BETA1/BETA2= 1.250


   ***************************************************
   *                *          ALPHA-LEVEL           *
   * TEST STATISTIC **********************************
   *                *   0.01   *   0.05   *   0.10   *
   ***************************************************
   *     LAMBDA     *    26    *    55    *    69    *
   ***************************************************
   *       U        *    0     *    0     *    0     *
   ***************************************************
   *       F        *    1     *    5     *    10    *
   ***************************************************
   *       T        *    34    *    62    *    71    *
   ***************************************************
   *     TPRIME     *    18    *    50    *    64    *
   ***************************************************
```

```
                         ******************
                         *  TABLE   NO  8  *
                         ******************

              TOTAL NUMBER OF REJECTION OUT OF 100 SAMPLES
              SIMULATED WITH THE GIVEN POPULATION PARAMETERS
              FOR 2 SAMPLES OF SIZE

                N1= 10                                 N2= 10

              MU1= 1.000                             MU2= 2.000

            SIGMA1= 2.000                         SIGMA2= 1.000

           BETA1=SIGMA1/MU1= 2.000             BETA2=SIGMA2/MU2= 0.500

            THETA=MU1/MU2= 0.500              PSI=BETA1/BETA2= 4.000

           **************************************************
           *              *          ALPHA-LEVEL            *
           * TEST STATISTIC **********************************
           *              *   0.01    *   0.05   *   0.10   *
           **************************************************
           *    LAMBDA    *     1     *     5    *    10    *
           **************************************************
           *      U       *     0     *     0    *     1    *
           **************************************************
           *      F       *    30     *    55    *    68    *
           **************************************************
           *      T       *    10     *    29    *    48    *
           **************************************************
           *    TPRIME    *     2     *    24    *    42    *
           **************************************************
```

```
                  ******************
                  *  TABLE  NO  9  *
                  ******************

            TOTAL NUMBER OF REJECTION OUT OF 100 SAMPLES
            SIMULATED WITH THE GIVEN POPULATION PARAMETERS
            FOR 2 SAMPLES OF SIZE

             N1= 10                                 N2= 10

            MU1= 1.000                             MU2= 3.000

         SIGMA1= 2.000                          SIGMA2= 2.500

        BETA1=SIGMA1/MU1= 2.000             BETA2=SIGMA2/MU2= 0.833

         THETA=MU1/MU2= 0.333             PSI=BETA1/BETA2= 2.400


        ***********************************************************
        *                  *           ALPHA-LEVEL               *
        *  TEST STATISTIC  ***************************************
        *                  *   0.01   *   0.05   *   0.10   *
        ***********************************************************
        *     LAMBDA       *    6     *    26    *    43    *
        ***********************************************************
        *       U          *    8     *    32    *    54    *
        ***********************************************************
        *       F          *    1     *     5    *    15    *
        ***********************************************************
        *       T          *   23     *    47    *    59    *
        ***********************************************************
        *     TPRIME       *    5     *    39    *    53    *
        ***********************************************************
```

```
                    ******************
                    *  TABLE  NO 10  *
                    ******************

          TOTAL NUMBER OF REJECTION OUT OF 100 SAMPLES
          SIMULATED WITH THE GIVEN POPULATION PARAMETERS
          FOR 2 SAMPLES OF SIZE

          N1= 10                                  N2= 10

          MU1= 4.000                            MU2= 6.000

       SIGMA1= 2.000                         SIGMA2= 2.500

    BETA1=SIGMA1/MU1= 0.500          BETA2=SIGMA2/MU2= 0.416

       THETA=MU1/MU2= 0.670          PSI=BETA1/BETA2= 1.200

    ***************************************************
    *                *          ALPHA-LEVEL           *
    * TEST STATISTIC **********************************
    *                *  0.01  *   0.05   *   0.10     *
    ***************************************************
    *     LAMBDA     *   25   *    52    *    66      *
    ***************************************************
    *       U        *    1   *     8    *    18      *
    ***************************************************
    *       F        *    4   *    11    *    17      *
    ***************************************************
    *       T        *   21   *    53    *    64      *
    ***************************************************
    *     TPRIME     *   13   *    43    *    60      *
    ***************************************************
```

```
                    *****************
                    *  TABLE  NO 11  *
                    *****************

        TOTAL NUMBER OF REJECTION OUT OF 100 SAMPLES
        SIMULATED WITH THE GIVEN POPULATION PARAMETERS
        FOR 2 SAMPLES OF SIZE

         N1= 10                                N2= 10

        MU1= 1.000                            MU2= 3.000

     SIGMA1= 2.000                         SIGMA2= 4.000

   BETA1=SIGMA1/MU1= 2.000            BETA2=SIGMA2/MU2= 1.333

     THETA=MU1/MU2= 0.333             PSI=BETA1/BETA2= 1.500

   ***************************************************
   *              *          ALPHA-LEVEL             *
   * TEST STATISTIC ************************************
   *              *  0.01   *  0.05   *   0.10    *
   ***************************************************
   *    LAMBDA    *   41    *   69    *    78     *
   ***************************************************
   *      U       *   45    *   71    *    82     *
   ***************************************************
   *      F       *   27    *   53    *    67     *
   ***************************************************
   *      T       *   14    *   27    *    43     *
   ***************************************************
   *    TPRIME    *    5    *   21    *    34     *
   ***************************************************
```

```
                              ******************
                              *  TABLE   NO 12  *
                              ******************

                 TOTAL NUMBER OF REJECTION OUT OF 100 SAMPLES
                 SIMULATED WITH THE GIVEN POPULATION PARAMETERS
                 FOR 2 SAMPLES OF SIZE

                  N1= 10                                N2= 10

                 MU1= 1.000                            MU2= 1.000

               SIGMA1= 2.000                         SIGMA2= 2.000

             BETA1=SIGMA1/MU1= 2.000            BETA2=SIGMA2/MU2= 2.000

               THETA=MU1/MU2= 1.000            PSI=BETA1/BETA2= 1.000

             ***************************************************
             *               *             ALPHA-LEVEL          *
             * TEST STATISTIC ***********************************
             *               *    0.01   *   0.05   *   0.10   *
             ***************************************************
             *    LAMBDA     *     0     *     1    *     8    *
             ***************************************************
             *      U        *     0     *     1    *     8    *
             ***************************************************
             *      F        *     1     *     2    *     4    *
             ***************************************************
             *      T        *     1     *     4    *    10    *
             ***************************************************
             *    TPRIME     *     0     *     1    *     7    *
             ***************************************************
```

```
                    ******************
                    *  TABLE  NO 13  *
                    ******************

         TOTAL NUMBER CF REJECTION OUT OF 100 SAMPLES
         SIMULATED WITH THE GIVEN POPULATION PARAMETERS
         FOR 2 SAMPLES OF SIZE

           N1= 10                                     N2= 10

          MU1= 1.000                                 MU2= 1.000

       SIGMA1= 0.500                              SIGMA2= 0.500

     BETA1=SIGMA1/MU1= 0.500               BETA2=SIGMA2/MU2= 0.500

       THETA=MU1/MU2= 1.000                 PSI=BETA1/BETA2= 1.000

     *****************************************************
     *                *          ALPHA-LEVEL             *
     * TEST STATISTIC ************************************
     *                *   0.01   *   0.05   *   0.10     *
     *****************************************************
     *    LAMBDA      *    2     *    5     *    7       *
     *****************************************************
     *      U         *    0     *    0     *    1       *
     *****************************************************
     *      F         *    1     *    6     *    7       *
     *****************************************************
     *      T         *    1     *    6     *   12       *
     *****************************************************
     *    TPRIME      *    0     *    4     *   12       *
     *****************************************************
```

```
                    ******************
                    *  TABLE   NO 14  *
                    ******************

         TOTAL NUMBER OF REJECTION OUT OF 100 SAMPLES
         SIMULATED WITH THE GIVEN POPULATION PARAMETERS
         FOR 2 SAMPLES OF SIZE

             N1= 10                               N2= 10

            MU1= 1.000                           MU2= 2.000

         SIGMA1= 3.000                        SIGMA2= 6.000

      BETA1=SIGMA1/MU1= 3.000          BETA2=SIGMA2/MU2= 3.000

        THETA=MU1/MU2= 2.000          PSI=BETA1/BETA2= 1.000

      ***********************************************************
      *               *            ALPHA-LEVEL                  *
      * TEST STATISTIC *****************************************
      *               *    0.01    *    0.05    *    0.10     *
      ***********************************************************
      *     LAMBDA    *     28     *     52     *     69      *
      ***********************************************************
      *       U       *     27     *     58     *     67      *
      ***********************************************************
      *       F       *     27     *     48     *     58      *
      ***********************************************************
      *       T       *      2     *      6     *     17      *
      ***********************************************************
      *     TPRIME    *      1     *      5     *      8      *
      ***********************************************************
```

```
                    *******************
                    *  TABLE NO 14A  *
                    *******************

       TOTAL NUMBER OF REJECTION OUT OF 1000 SAMPLES
       SIMULATED WITH THE GIVEN POPULATION PARAMETERS
       FOR 2 SAMPLES OF SIZE

         N1= 10                             N2= 10

        MU1= 1.000                         MU2= 2.000

     SIGMA1= 3.000                      SIGMA2= 6.000

  BETA1=SIGMA1/MU1= 3.000           BETA2=SIGMA2/MU2= 3.000

    THETA=MU1/MU2= 2.000            PSI=BETA1/BETA2= 1.000


  ****************************************************
  *                *          ALPHA-LEVEL            *
  * TEST STATISTIC ***********************************
  *                *   0.01   *   0.05   *   0.10    *
  ****************************************************
  *     LAMBDA     *   238    *   509    *   657     *
  ****************************************************
  *       U        *   257    *   537    *   661     *
  ****************************************************
  *       F        *   217    *   484    *   618     *
  ****************************************************
  *       T        *     9    *    63    *   125     *
  ****************************************************
  *     TPRIME     *     1    *    39    *    95     *
  ****************************************************
```

```
                    ******************
                    *  TABLE  NO 15  *
                    ******************

          TOTAL NUMBER OF REJECTION OUT OF 100 SAMPLES
          SIMULATED WITH THE GIVEN POPULATION PARAMETERS
          FOR 2 SAMPLES OF SIZE

          N1= 10                                N2= 10

          MU1= 1.000                            MU2= 2.000

        SIGMA1= 4.000                        SIGMA2= 8.000

      BETA1=SIGMA1/MU1= 4.000          BETA2=SIGMA2/MU2= 4.000

        THETA=MU1/MU2= 0.500            PSI=BETA1/BETA2= 1.000

      **********************************************************
      *                  *          ALPHA-LEVEL               *
      *  TEST STATISTIC  **************************************
      *                  *   0.01    *   0.05    *   0.10     *
      **********************************************************
      *     LAMBDA       *    26     *    60     *    70      *
      **********************************************************
      *       U          *    33     *    58     *    75      *
      **********************************************************
      *       F          *    27     *    54     *    70      *
      **********************************************************
      *       T          *     1     *     5     *    14      *
      **********************************************************
      *     TPRIME       *     0     *     3     *     9      *
      **********************************************************
```

```
                        *******************
                        *  TABLE NO 15A   *
                        *******************

            TOTAL NUMBER OF REJECTION OUT OF 1000 SAMPLES
            SIMULATED WITH THE GIVEN POPULATION PARAMETERS
            FOR 2 SAMPLES OF SIZE

             N1= 10                                 N2= 10

            MU1= 1.000                             MU2= 2.000

         SIGMA1= 4.000                          SIGMA2= 8.000

      BETA1=SIGMA1/MU1= 4.000            BETA2=SIGMA2/MU2= 4.000

         THETA=MU1/MU2= 0.500            PSI=BETA1/BETA2= 1.000


      *****************************************************
      *                *         ALPHA-LEVEL              *
      * TEST STATISTIC ************************************
      *                *   0.01   *   0.05   *   0.10     *
      *****************************************************
      *     LAMBDA     *   266    *   551    *   683      *
      *****************************************************
      *       U        *   296    *   570    *   695      *
      *****************************************************
      *       F        *   255    *   506    *   646      *
      *****************************************************
      *       T        *    16    *    70    *   138      *
      *****************************************************
      *     TPRIME     *     6    *    47    *   104      *
      *****************************************************
```

```
                    ******************
                    *  TABLE  NO 16  *
                    ******************

          TOTAL NUMBER OF REJECTION OUT OF 100 SAMPLES
          SIMULATED WITH THE GIVEN POPULATION PARAMETERS
          FOR 2 SAMPLES OF SIZE

             N1= 10                                N2= 10

            MU1= 1.000                            MU2= 0.500

         SIGMA1= 4.000                         SIGMA2= 2.000

        BETA1=SIGMA1/MU1= 4.000          BETA2=SIGMA2/MU2= 4.000

          THETA=MU1/MU2= 2.000           PSI=BETA1/BETA2= 1.000

        ****************************************************
        *                *         ALPHA-LEVEL             *
        *  TEST STATISTIC ***********************************
        *                *   0.01   *   0.05   *   0.10    *
        ****************************************************
        *     LAMBDA     *    22    *    53    *    62     *
        ****************************************************
        *       U        *    24    *    55    *    65     *
        ****************************************************
        *       F        *    20    *    49    *    59     *
        ****************************************************
        *       T        *     0    *     6    *    12     *
        ****************************************************
        *     TPRIME     *     0    *     1    *    11     *
        ****************************************************
```

```
                  *****************
                  *  TABLE  NO 17  *
                  *****************

        TOTAL NUMBER OF REJECTION OUT OF 100 SAMPLES
        SIMULATED WITH THE GIVEN POPULATION PARAMETERS
        FOR 2 SAMPLES OF SIZE

          N1= 10                                N2= 10

         MU1= 1.000                            MU2= 5.000

      SIGMA1= 5.000                         SIGMA2=25.000

    BETA1=SIGMA1/MU1= 5.000              BETA2=SIGMA2/MU2= 5.000

      THETA=MU1/MU2= 0.200               PSI=BETA1/BETA2= 1.000

    ***************************************************
    *                *           ALPHA-LEVEL          *
    * TEST STATISTIC **********************************
    *                *   0.01   *   0.05   *   0.10   *
    ***************************************************
    *     LAMBDA     *    99    *    99    *    99    *
    ***************************************************
    *       U        *    98    *    99    *    99    *
    ***************************************************
    *       F        *    98    *    99    *    99    *
    ***************************************************
    *       T        *     2    *    14    *    18    *
    ***************************************************
    *     TPRIME     *     0    *     9    *    17    *
    ***************************************************
```

```
                    ******************
                    *  TABLE  NO 18  *
                    ******************

         TOTAL NUMBER OF REJECTION OUT OF 100 SAMPLES
         SIMULATED WITH THE GIVEN POPULATION PARAMETERS
         FOR 2 SAMPLES OF SIZE

           N1= 10                             N2= 10

         MU1= 1.000                        MU2= 1.200

       SIGMA1=10.000                    SIGMA2=12.000

      BETA1=SIGMA1/MU1=10.000          BETA2=SIGMA2/MU2=10.000

       THETA=MU1/MU2= 0.800            PSI=BETA1/BETA2= 1.000

      ***********************************************
      *                *        ALPHA-LEVEL          *
      * TEST STATISTIC ******************************
      *                *  0.01  *  0.05  *  0.10    *
      ***********************************************
      *     LAMBDA     *   2    *   5    *   11     *
      ***********************************************
      *       U        *   2    *   7    *   15     *
      ***********************************************
      *       F        *   1    *   8    *   11     *
      ***********************************************
      *       T        *   0    *   6    *   10     *
      ***********************************************
      *     TPRIME     *   0    *   4    *    9     *
      ***********************************************
```

```
                    ******************
                    *  TABLE  NO 19  *
                    ******************

        TOTAL NUMBER OF REJECTION OUT OF 100 SAMPLES
        SIMULATED WITH THE GIVEN POPULATION PARAMETERS
        FOR 2 SAMPLES OF SIZE

          N1= 10                              N2= 10

         MU1= 0.950                          MU2= 1.000

      SIGMA1= 0.475                       SIGMA2= 0.500

     BETA1=SIGMA1/MU1= 0.500         BETA2=SIGMA2/MU2= 0.500

       THETA=MU1/MU2= 0.950           PSI=BETA1/BETA2= 1.000

     ***************************************************
     *                 *           ALPHA-LEVEL         *
     * TEST STATISTIC  *********************************
     *                 *   0.01  *   0.05  *   0.10    *
     ***************************************************
     *     LAMBDA      *    1    *    7    *    13     *
     ***************************************************
     *       U         *    0    *    0    *    0      *
     ***************************************************
     *       F         *    0    *    1    *    7      *
     ***************************************************
     *       T         *    2    *    7    *    13     *
     ***************************************************
     *     TPRIME      *    0    *    4    *    10     *
     ***************************************************
```

```
                    ******************
                    *  TABLE  NU 20  *
                    ******************

          TOTAL NUMBER OF REJECTION OUT OF 100 SAMPLES
          SIMULATED WITH THE GIVEN POPULATION PARAMETERS
          FOR 2 SAMPLES OF SIZE

              N1= 10                          N2= 10

            MU1= 0.800                      MU2= 0.600

         SIGMA1= 4.000                   SIGMA2= 3.000

       BETA1=SIGMA1/MU1= 5.000         BETA2=SIGMA2/MU2= 5.000

         THETA=MU1/MU2= 1.333          PSI=BETA1/BETA2= 1.000

       **************************************************
       *              *          ALPHA-LEVEL            *
       * TEST STATISTIC *********************************
       *              *   0.01  *   0.05  *   0.10  *
       **************************************************
       *    LAMBDA    *     0    *   16    *   25    *
       **************************************************
       *      U       *     1    *   19    *   27    *
       **************************************************
       *      F       *     2    *   13    *   22    *
       **************************************************
       *      T       *     1    *    6    *   10    *
       **************************************************
       *    TPRIME    *     1    *    5    *    8    *
       **************************************************
```

```
                   ******************
                   *  TABLE  NO 21  *
                   ******************

          TOTAL NUMBER OF REJECTION OUT OF 100 SAMPLES
          SIMULATED WITH THE GIVEN POPULATION PARAMETERS
          FOR 2 SAMPLES OF SIZE

           N1= 10                             N2= 10

          MU1= 0.600                         MU2= 0.200

        SIGMA1= 3.600                     SIGMA2= 1.200

      BETA1=SIGMA1/MU1= 6.000          BETA2=SIGMA2/MU2= 6.000

        THETA=MU1/MU2= 3.000          PSI=BETA1/BETA2= 1.000


      ***********************************************
      *               *        ALPHA-LEVEL          *
      * TEST STATISTIC *******************************
      *               *  0.01   *  0.05   *  0.10   *
      ***********************************************
      *    LAMBDA     *   68    *   88    *   93    *
      ***********************************************
      *      U        *   69    *   88    *   94    *
      ***********************************************
      *      F        *   64    *   89    *   93    *
      ***********************************************
      *      T        *    2    *    4    *    7    *
      ***********************************************
      *    TPRIME     *    0    *    3    *    5    *
      ***********************************************
```

```
                    *****************
                    *  TABLE  NO 22  *
                    *****************

        TOTAL NUMBER OF REJECTION OUT OF 100 SAMPLES
        SIMULATED WITH THE GIVEN POPULATION PARAMETERS
        FOR 2 SAMPLES OF SIZE

          N1= 10                               N2= 10

        MU1= 1.000                          MU2= 1.500

     SIGMA1= 2.000                       SIGMA2= 3.000

   BETA1=SIGMA1/MU1= 2.000           BETA2=SIGMA2/MU2= 2.000

     THETA=MU1/MU2= 0.670           PSI=BETA1/BETA2= 1.000


   ***************************************************
   *                *          ALPHA-LEVEL           *
   * TEST STATISTIC **********************************
   *                *   0.01   *   0.05   *   0.10   *
   ***************************************************
   *     LAMBDA     *    4     *    17    *    28    *
   ***************************************************
   *       U        *    4     *    15    *    24    *
   ***************************************************
   *       F        *    5     *    19    *    27    *
   ***************************************************
   *       T        *    0     *    3     *    10    *
   ***************************************************
   *     TPRIME     *    0     *    1     *    7     *
   ***************************************************
```

```
                    ******************
                    *  TABLE  NO 23  *
                    ******************

             TOTAL NUMBER OF REJECTION OUT OF 100 SAMPLES
             SIMULATED WITH THE GIVEN POPULATION PARAMETERS
             FOR 2 SAMPLES OF SIZE

              N1= 10                                 N2= 10

             MU1= 2.000                            MU2= 1.500

          SIGMA1= 1.000                         SIGMA2= 3.000

         BETA1=SIGMA1/MU1= 0.50             BETA2=SIGMA2/MU2= 2.000

          THETA=MU1/MU2= 1.333             PSI=BETA1/BETA2= 0.125

         ***********************************************
         *                 *          ALPHA-LEVEL      *
         * TEST STATISTIC  *****************************
         *                 *  0.01  *  0.05  *  0.10   *
         ***********************************************
         *     LAMBDA      *   20   *   53   *   66    *
         ***********************************************
         *       U         *    3   *   16   *   23    *
         ***********************************************
         *       F         *   71   *   89   *   94    *
         ***********************************************
         *       T         *    4   *    8   *   10    *
         ***********************************************
         *     TPRIME      *    0   *    8   *    9    *
         ***********************************************
```

```
                  ******************
                  *  TABLE  NO 24  *
                  ******************

            TOTAL NUMBER OF REJECTION OUT OF 100 SAMPLES
            SIMULATED WITH THE GIVEN POPULATION PARAMETERS
            FOR 2 SAMPLES OF SIZE

             N1= 10                               N2= 10

            MU1= 1.000                             MU2= 0.500

          SIGMA1= 3.000                          SIGMA2= 1.500

         BETA1=SIGMA1/MU1= 3.000             BETA2=SIGMA2/MU2= 3.000

          THETA=MU1/MU2= 2.000               PSI=BETA1/BETA2= 1.000

         ***************************************************
         *                *          ALPHA-LEVEL           *
         * TEST STATISTIC **********************************
         *                *   0.01   *   0.05   *   0.10   *
         ***************************************************
         *     LAMBDA     *    26    *    59    *    68    *
         ***************************************************
         *       U        *    28    *    60    *    70    *
         ***************************************************
         *       F        *    23    *    53    *    67    *
         ***************************************************
         *       T        *    1     *    6     *    15    *
         ***************************************************
         *     TPRIME     *    0     *    2     *    8     *
         ***************************************************
```

```
                    *******************
                    *   TABLE NO 24A  *
                    *******************

            TOTAL NUMBER OF REJECTION OUT OF 1000 SAMPLES
            SIMULATED WITH THE GIVEN POPULATION PARAMETERS
            FOR 2 SAMPLES OF SIZE

             N1= 10                            N2= 10

            MU1= 1.000                        MU2= 0.500

          SIGMA1= 3.000                     SIGMA2= 1.500

        BETA1=SIGMA1/MU1= 3.000          BETA2=SIGMA2/MU2= 3.000

          THETA=MU1/MU2= 2.000           PSI=BETA1/BETA2= 1.000


        ****************************************************
        *                *            ALPHA-LEVEL          *
        * TEST STATISTIC ***********************************
        *                *   0.01   *   0.05   *   0.10    *
        ****************************************************
        *     LAMBDA     *   282    *   551    *   691     *
        ****************************************************
        *       U        *   300    *   571    *   695     *
        ****************************************************
        *       F        *   248    *   511    *   647     *
        ****************************************************
        *       T        *    20    *    74    *   135     *
        ****************************************************
        *     TPRIME     *     9    *    51    *   101     *
        ****************************************************
```

```
                    ******************
                    *  TABLE  NO 25  *
                    ******************

           TOTAL NUMBER OF REJECTION OUT OF 100 SAMPLES
           SIMULATED WITH THE GIVEN POPULATION PARAMETERS
           FOR 2 SAMPLES OF SIZE

             N1= 10                            N2= 10

            MU1= 0.750                        MU2= 0.500

          SIGMA1= 2.250                     SIGMA2= 1.500

         BETA1=SIGMA1/MU1= 3.000         BETA2=SIGMA2/MU2= 3.000

          THETA=MU1/MU2= 1.500           PSI=BETA1/BETA2= 1.000

         **********************************************
         *              *         ALPHA-LEVEL         *
         * TEST STATISTIC *****************************
         *              *   0.01  *   0.05  *   0.10  *
         **********************************************
         *    LAMBDA    *     8   *    25   *    34   *
         **********************************************
         *      U       *    10   *    24   *    30   *
         **********************************************
         *      F       *     8   *    25   *    33   *
         **********************************************
         *      T       *     2   *     5   *     6   *
         **********************************************
         *    TPRIME    *     0   *     4   *     5   *
         **********************************************
```

```
                   ******************
                   *  TABLE NO 25A  *
                   ******************

         TOTAL NUMBER OF REJECTION OUT OF 1000 SAMPLES
         SIMULATED WITH THE GIVEN POPULATION PARAMETERS
         FOR 2 SAMPLES OF SIZE

          N1= 10                               N2= 10

          MU1= 0.750                          MU2= 0.500

       SIGMA1= 2.250                       SIGMA2= 1.500

     BETA1=SIGMA1/MU1= 3.000          BETA2=SIGMA2/MU2= 3.000

       THETA=MU1/MU2= 1.500            PSI=BETA1/BETA2= 1.000


     ***************************************************
     *                *           ALPHA-LEVEL          *
     * TEST STATISTIC **********************************
     *                *   0.01   *   0.05   *   0.10   *
     ***************************************************
     *     LAMBDA     *    49    *   190    *   312    *
     ***************************************************
     *       U        *    67    *   201    *   314    *
     ***************************************************
     *       F        *    51    *   179    *   287    *
     ***************************************************
     *       T        *    10    *    74    *   126    *
     ***************************************************
     *     TPRIME     *     7    *    46    *   101    *
     ***************************************************
```

```
                    ******************
                    *  TABLE   NO 26  *
                    ******************

          TOTAL NUMBER OF REJECTION OUT OF 100 SAMPLES
          SIMULATED WITH THE GIVEN POPULATION PARAMETERS
          FOR 2 SAMPLES OF SIZE

            N1= 10                              N2= 10

            MU1= 1.000                        MU2= 0.500

         SIGMA1= 4.000                     SIGMA2= 2.000

       BETA1=SIGMA1/MU1= 4.000          BETA2=SIGMA2/MU2= 4.000

         THETA=MU1/MU2= 2.000          PSI=BETA1/BETA2= 1.000

       ***********************************************
       *               *          ALPHA-LEVEL         *
       *  TEST STATISTIC ******************************
       *               *   0.01  *   0.05  *   0.10   *
       ***********************************************
       *     LAMBDA    *    24   *    55   *    71    *
       ***********************************************
       *       U       *    28   *    59   *    76    *
       ***********************************************
       *       F       *    26   *    53   *    65    *
       ***********************************************
       *       T       *     0   *     5   *    11    *
       ***********************************************
       *     TPRIME    *     0   *     2   *     6    *
       ***********************************************
```

```
                    ******************
                    *  TABLE  NO 27  *
                    ******************

          TOTAL NUMBER OF REJECTION OUT OF 100 SAMPLES
          SIMULATED WITH THE GIVEN POPULATION PARAMETERS
          FOR 2 SAMPLES OF SIZE

             N1= 10                              N2= 10

            MU1= 0.750                          MU2= 0.500

        SIGMA1= 3.000                        SIGMA2= 2.000

      BETA1=SIGMA1/MU1= 4.000           BETA2=SIGMA2/MU2= 4.000

        THETA=MU1/MU2= 1.500              PSI=BETA1/BETA2= 1.000

      ****************************************************
      *                 *      ALPHA-LEVEL               *
      * TEST STATISTIC  **********************************
      *                 *   0.01   *   0.05   *   0.10   *
      ****************************************************
      *     LAMBDA      *    11    *    24    *    37    *
      ****************************************************
      *       U         *    11    *    24    *    40    *
      ****************************************************
      *       F         *    11    *    25    *    40    *
      ****************************************************
      *       T         *    1     *    4     *    5     *
      ****************************************************
      *     TPRIME      *    0     *    4     *    5     *
      ****************************************************
```

```
                 *******************
                 *   TABLE NO 27A  *
                 *******************

          TOTAL NUMBER OF REJECTION OUT OF 1000 SAMPLES
          SIMULATED WITH THE GIVEN POPULATION PARAMETERS
          FOR 2 SAMPLES OF SIZE

            N1= 10                               N2= 10

            MU1= 0.750                           MU2= 0.500

         SIGMA1= 3.000                        SIGMA2= 2.000

        BETA1=SIGMA1/MU1= 4.000           BETA2=SIGMA2/MU2= 4.000

         THETA=MU1/MU2= 1.500            PSI=BETA1/BETA2= 1.000


        ****************************************************
        *                *            ALPHA-LEVEL          *
        * TEST STATISTIC ***********************************
        *                *   0.01   *   0.05   *   0.10    *
        ****************************************************
        *     LAMBDA     *    46    *   188    *   307     *
        ****************************************************
        *       U        *    62    *   200    *   317     *
        ****************************************************
        *       F        *    51    *   179    *   287     *
        ****************************************************
        *       T        *    10    *    66    *   116     *
        ****************************************************
        *     TPRIME     *     5    *    39    *    97     *
        ****************************************************
```

```
                  *****************
                  *  TABLE  NO 28  *
                  *****************

         TOTAL NUMBER OF REJECTION OUT OF 100 SAMPLES
         SIMULATED WITH THE GIVEN POPULATION PARAMETERS
         FOR 2 SAMPLES OF SIZE

          N1= 10                           N2= 10

         MU1= 0.750                       MU2= 0.500

      SIGMA1= 3.750                    SIGMA2= 2.500

    BETA1=SIGMA1/MU1= 5.000         BETA2=SIGMA2/MU2= 5.000

      THETA=MU1/MU2= 1.500         PSI=BETA1/BETA2= 1.000

    ***********************************************
    *              *          ALPHA-LEVEL         *
    * TEST STATISTIC ******************************
    *              *   0.01  *   0.05  *   0.10   *
    ***********************************************
    *    LAMBDA    *    5    *   17    *   30     *
    ***********************************************
    *      U       *    4    *   18    *   29     *
    ***********************************************
    *      F       *    4    *   20    *   27     *
    ***********************************************
    *      T       *    1    *    6    *    8     *
    ***********************************************
    *    TPRIME    *    0    *    4    *    8     *
    ***********************************************
```

```
                 *****************
                 *  TABLE  NO 29  *
                 *****************

          TOTAL NUMBER OF REJECTION OUT OF 100 SAMPLES
          SIMULATED WITH THE GIVEN POPULATION PARAMETERS
          FOR 2 SAMPLES OF SIZE

           N1= 10                               N2= 10

          MU1= 0.500                           MU2= 1.500

       SIGMA1= 1.000                        SIGMA2= 3.000

    BETA1=SIGMA1/MU1= 2.000          BETA2=SIGMA2/MU2= 2.000

     THETA=MU1/MU2= 0.333             PSI=BETA1/BETA2= 1.000

    *****************************************************
    *               *          ALPHA-LEVEL              *
    * TEST STATISTIC *************************************
    *               *   0.01   *   0.05   *   0.10      *
    *****************************************************
    *    LAMBDA     *    68    *    91    *    97       *
    *****************************************************
    *      U        *    70    *    90    *    95       *
    *****************************************************
    *      F        *    62    *    87    *    94       *
    *****************************************************
    *      T        *     3    *    13    *    24       *
    *****************************************************
    *    TPRIME     *     1    *     8    *    20       *
    *****************************************************
```

```
                ******************
                *  TABLE  NO 30  *
                ******************

          TOTAL NUMBER OF REJECTION OUT OF 100 SAMPLES
          SIMULATED WITH THE GIVEN POPULATION PARAMETERS
          FOR 2 SAMPLES OF SIZE

             N1= 10                                   N2= 10

            MU1= 1.000                               MU2= 2.000

         SIGMA1= 0.050                            SIGMA2= 0.100

        BETA1=SIGMA1/MU1= 0.050            BETA2=SIGMA2/MU2= 0.050

         THETA=MU1/MU2= 0.500              PSI=BETA1/BETA2= 1.000


        **************************************************
        *              *          ALPHA-LEVEL            *
        * TEST STATISTIC ***********************************
        *              *   0.01   *   0.05   *   0.10    *
        **************************************************
        *    LAMBDA    *   100    *   100    *   100     *
        **************************************************
        *      U       *     0    *    98    *   100     *
        **************************************************
        *      F       *    30    *    52    *    62     *
        **************************************************
        *      T       *   100    *   100    *   100     *
        **************************************************
        *    TPRIME    *   100    *   100    *   100     *
        **************************************************
```

```
                    ******************
                    *  TABLE   NO 33  *
                    ******************

            TOTAL NUMBER OF REJECTION OUT OF 100 SAMPLES
            SIMULATED WITH THE GIVEN POPULATION PARAMETERS
            FOR 2 SAMPLES OF SIZE

              N1= 10                                   N2= 10

            MU1= 1.000                              MU2= 1.500

         SIGMA1= 0.200                           SIGMA2= 0.300

       BETA1=SIGMA1/MU1= 0.200              BETA2=SIGMA2/MU2= 0.200

         THETA=MU1/MU2= 0.333              PSI=BETA1/BETA2= 1.000

       ****************************************************
       *               *          ALPHA-LEVEL             *
       *  TEST STATISTIC **********************************
       *               *   0.01   *   0.05   *   0.10    *
       ****************************************************
       *     LAMBDA    *    98    *   100    *   100     *
       ****************************************************
       *       U       *     0    *     0    *     6     *
       ****************************************************
       *       F       *     7    *    16    *    29     *
       ****************************************************
       *       T       *    93    *    98    *    99     *
       ****************************************************
       *     TPRIME    *    85    *    98    *    99     *
       ****************************************************
```

```
                  *****************
                  *  TABLE  NO 34  *
                  *****************

          TOTAL NUMBER OF REJECTION OUT OF 100 SAMPLES
          SIMULATED WITH THE GIVEN POPULATION PARAMETERS
          FOR 2 SAMPLES OF SIZE

             N1= 10                           N2= 10

             MU1= 1.000                      MU2= 2.000

           SIGMA1= 0.500                  SIGMA2= 1.200

       BETA1=SIGMA1/MU1= 0.500        BETA2=SIGMA2/MU2= 0.600

         THETA=MU1/MU2= 0.500         PSI=BETA1/BETA2= 0.833

       **********************************************
       *              *           ALPHA-LEVEL       *
       * TEST STATISTIC *****************************
       *              *  0.01  *  0.05  *  0.10  *
       **********************************************
       *    LAMBDA    *   79   *   98   *  100   *
       **********************************************
       *      U       *   20   *   66   *   80   *
       **********************************************
       *      F       *   40   *   67   *   75   *
       **********************************************
       *      T       *   34   *   62   *   79   *
       **********************************************
       *    TPRIME    *   20   *   53   *   78   *
       **********************************************
```

```
                  ******************
                  *  TABLE  NO 35  *
                  ******************

        TOTAL NUMBER OF REJECTION OUT OF 100 SAMPLES
        SIMULATED WITH THE GIVEN POPULATION PARAMETERS
        FOR 2 SAMPLES OF SIZE

         N1= 10                                N2= 10

        MU1= 1.000                          MU2= 2.000

     SIGMA1= 1.000                       SIGMA2= 4.000

   BETA1=SIGMA1/MU1= 1.000           BETA2=SIGMA2/MU2= 2.000

     THETA=MU1/MU2= 0.500            PSI=BETA1/BETA2= 0.500

   ***************************************************
   *               *            ALPHA-LEVEL          *
   * TEST STATISTIC ***********************************
   *               *   0.01   *   0.05   *   0.10    *
   ***************************************************
   *     LAMBDA    *    89    *    98    *    99     *
   ***************************************************
   *       U       *    80    *    95    *    97     *
   ***************************************************
   *       F       *    91    *    96    *    98     *
   ***************************************************
   *       T       *     5    *    14    *    19     *
   ***************************************************
   *     TPRIME    *     4    *    10    *    17     *
   ***************************************************
```

```
                    *******************
                    *  TABLE NO 35A   *
                    *******************

            TOTAL NUMBER OF REJECTION OUT OF 1000 SAMPLES
            SIMULATED WITH THE GIVEN POPULATION PARAMETERS
            FOR 2 SAMPLES OF SIZE

             N1= 10                                N2= 10

             MU1= 1.000                          MU2= 2.000

          SIGMA1= 1.000                       SIGMA2= 4.000

         BETA1=SIGMA1/MU1= 1.000          BETA2=SIGMA2/MU2= 2.000

          THETA=MU1/MU2= 0.500            PSI=BETA1/BETA2= 0.500

         **************************************************
         *              *          ALPHA-LEVEL            *
         * TEST STATISTIC ********************************
         *              *   0.01   *   0.05   *   0.10    *
         **************************************************
         *    LAMBDA    *   904    *   976    *   992     *
         **************************************************
         *      U       *   791    *   942    *   968     *
         **************************************************
         *      F       *   900    *   965    *   980     *
         **************************************************
         *      T       *    34    *   118    *   195     *
         **************************************************
         *    TPRIME    *    15    *    85    *   149     *
         **************************************************
```

```
               ******************
               *  TABLE   NO 36  *
               ******************

    TOTAL NUMBER OF REJECTION OUT OF 100 SAMPLES
    SIMULATED WITH THE GIVEN POPULATION PARAMETERS
    FOR 2 SAMPLES OF SIZE

     N1= 10                         N2= 10

    MU1= 1.000                     MU2= 2.000

  SIGMA1= 1.500                 SIGMA2= 2.000

BETA1=SIGMA1/MU1= 1.500      BETA2=SIGMA2/MU2= 1.000

  THETA=MU1/MU2= 0.500      PSI=BETA1/BETA2= 1.500

*********************************************
*              *        ALPHA-LEVEL         *
* TEST STATISTIC ****************************
*              *   0.01  *   0.05  *   0.10 *
*********************************************
*    LAMBDA    *    8    *    24   *    33  *
*********************************************
*      U       *    6    *    24   *    34  *
*********************************************
*      F       *    3    *    11   *    16  *
*********************************************
*      T       *    5    *    24   *    40  *
*********************************************
*    TPRIME    *    2    *    20   *    33  *
*********************************************
```

```
                    *******************
                    *  TABLE NO 36A   *
                    *******************

            TOTAL NUMBER OF REJECTION OUT OF 1000 SAMPLES
            SIMULATED WITH THE GIVEN POPULATION PARAMETERS
            FOR 2 SAMPLES OF SIZE

             N1= 10                              N2= 10

             MU1= 1.000                          MU2= 2.000

          SIGMA1= 1.500                       SIGMA2= 2.000

         BETA1=SIGMA1/MU1= 1.500           BETA2=SIGMA2/MU2= 1.000

          THETA=MU1/MU2= 0.500            PSI=BETA1/BETA2= 1.500


         ***************************************************
         *                *         ALPHA-LEVEL            *
         * TEST STATISTIC **********************************
         *                *   0.01   *   0.05   *   0.10   *
         ***************************************************
         *     LAMBDA     *    74    *   257    *   398    *
         ***************************************************
         *       U        *    72    *   241    *   398    *
         ***************************************************
         *       F        *    32    *   117    *   215    *
         ***************************************************
         *       T        *    78    *   236    *   347    *
         ***************************************************
         *     TPRIME     *    39    *   181    *   296    *
         ***************************************************
```

```
                    ******************
                    *  TABLE  NO 37  *
                    ******************

        TOTAL NUMBER OF REJECTION OUT OF 100 SAMPLES
        SIMULATED WITH THE GIVEN POPULATION PARAMETERS
        FOR 2 SAMPLES OF SIZE

          N1= 10                          N2= 10

         MU1= 1.000                      MU2= 2.000

      SIGMA1= 1.000                   SIGMA2= 3.000

    BETA1=SIGMA1/MU1= 1.000         BETA2=SIGMA2/MU2= 1.500

      THETA=MU1/MU2= 0.500          PSI=BETA1/BETA2= 0.667

    ***********************************************
    *               *          ALPHA-LEVEL        *
    * TEST STATISTIC *******************************
    *               *  0.01   *  0.05   *  0.10   *
    ***********************************************
    *    LAMBDA     *   77    *   94    *   97    *
    ***********************************************
    *      U        *   58    *   82    *   94    *
    ***********************************************
    *      F        *   70    *   90    *   96    *
    ***********************************************
    *      T        *    8    *   21    *   26    *
    ***********************************************
    *    TPRIME     *    1    *   16    *   23    *
    ***********************************************
```

```
                  *******************
                  *  TABLE NO 37A   *
                  *******************

          TOTAL NUMBER OF REJECTION OUT OF 1000 SAMPLES
          SIMULATED WITH THE GIVEN POPULATION PARAMETERS
          FOR 2 SAMPLES OF SIZE

           N1= 10                              N2= 10

          MU1= 1.000                         MU2= 2.000

       SIGMA1= 1.000                      SIGMA2= 3.000

     BETA1=SIGMA1/MU1= 1.000         BETA2=SIGMA2/MU2= 1.500

       THETA=MU1/MU2= 0.500         PSI=BETA1/BETA2= 0.667


     ****************************************************
     *                *          ALPHA-LEVEL            *
     * TEST STATISTIC ***********************************
     *                *   0.01    *   0.05    *   0.10  *
     ****************************************************
     *     LAMBDA     *   749     *   902     *   949   *
     ****************************************************
     *       U        *   566     *   816     *   896   *
     ****************************************************
     *       F        *   671     *   860     *   907   *
     ****************************************************
     *       T        *    79     *   201     *   294   *
     ****************************************************
     *     TPRIME     *    38     *   159     *   251   *
     ****************************************************
```

```
                  ******************
                  *  TABLE  NO 38  *
                  ******************

        TOTAL NUMBER OF REJECTION OUT OF 100 SAMPLES
        SIMULATED WITH THE GIVEN POPULATION PARAMETERS
        FOR 2 SAMPLES OF SIZE

          N1= 10                                N2= 10

         MU1= 1.000                           MU2= 2.000

      SIGMA1= 2.000                        SIGMA2= 2.000

     BETA1=SIGMA1/MU1= 2.000            BETA2=SIGMA2/MU2= 1.000

       THETA=MU1/MU2= 0.500            PSI=BETA1/BETA2= 2.000


     ******************************************************
     *                 *           ALPHA-LEVEL             *
     *  TEST STATISTIC ************************************
     *                 *   0.01   *   0.05   *   0.10    *
     ******************************************************
     *      LAMBDA     *    3     *    8     *    12     *
     ******************************************************
     *        U        *    2     *    8     *    11     *
     ******************************************************
     *        F        *    1     *    7     *    11     *
     ******************************************************
     *        T        *    5     *    19    *    27     *
     ******************************************************
     *      TPRIME     *    2     *    15    *    23     *
     ******************************************************
```

```
                    ******************
                    *  TABLE  NO 39  *
                    ******************

          TOTAL NUMBER OF REJECTION OUT OF 100 SAMPLES
          SIMULATED WITH THE GIVEN POPULATION PARAMETERS
          FOR 2 SAMPLES OF SIZE

          N1=  2                                  N2=  4

          MU1= 8.000                         MU2=10.000

        SIGMA1= 2.000                      SIGMA2= 2.500

       BETA1=SIGMA1/MU1= 0.250         BETA2=SIGMA2/MU2= 0.250

        THETA=MU1/MU2= 0.800           PSI=BETA1/BETA2= 1.000

       *************************************************
       *                *          ALPHA-LEVEL          *
       * TEST STATISTIC *********************************
       *                *   0.01   *   0.05   *   0.10   *
       *************************************************
       *     LAMBDA     *     5    *    22    *    33    *
       *************************************************
       *       U        *     0    *     0    *     0    *
       *************************************************
       *       F        *     1    *     4    *     8    *
       *************************************************
       *       T        *     4    *    18    *    28    *
       *************************************************
       *     TPRIME     *     0    *     3    *    18    *
       *************************************************
```

```
                    *****************
                    *  TABLE  NO 40  *
                    *****************

        TOTAL  NUMBER  OF  REJECTION  OUT  OF  100  SAMPLES
        SIMULATED  WITH  THE  GIVEN  POPULATION  PARAMETERS
        FOR  2  SAMPLES  OF  SIZE

           N1=   2                                   N2=   4

          MU1=  2.000                              MU2=  4.000

       SIGMA1=  2.000                           SIGMA2=  4.000

     BETA1=SIGMA1/MU1=  1.000              BETA2=SIGMA2/MU2=  1.000

       THETA=MU1/MU2=  0.500              PSI=BETA1/BETA2=  1.000

     ***********************************************
     *               *          ALPHA-LEVEL        *
     * TEST STATISTIC *******************************
     *               *  0.01  *  0.05   *  0.10    *
     ***********************************************
     *    LAMBDA     *    2   *   13    *   18     *
     ***********************************************
     *      U        *    1   *    7    *   16     *
     ***********************************************
     *      F        *    1   *    1    *    8     *
     ***********************************************
     *      T        *    2   *    7    *   15     *
     ***********************************************
     *    TPRIME     *    0   *    3    *    9     *
     ***********************************************
```

```
                   ******************
                   *  TABLE  NO 4L  *
                   ******************

        TOTAL NUMBER OF REJECTION OUT OF 100 SAMPLES
        SIMULATED WITH THE GIVEN POPULATION PARAMETERS
        FOR 2 SAMPLES OF SIZE

          N1=  2                                N2=  4

          MU1= 1.000                            MU2= 1.000

        SIGMA1= 2.000                         SIGMA2= 4.000

      BETA1=SIGMA1/MU1= 2.000              BETA2=SIGMA2/MU2= 4.000

        THETA=MU1/MU2= 1.000               PSI=BETA1/BETA2= 0.500

      ************************************************************
      *                *            ALPHA-LEVEL                  *
      * TEST STATISTIC *******************************************
      *                *    0.01    *    0.05    *    0.10       *
      ************************************************************
      *     LAMBDA     *     0      *     3      *     10        *
      ************************************************************
      *       U        *     0      *     7      *     13        *
      ************************************************************
      *       F        *     1      *     1      *     6         *
      ************************************************************
      *       T        *     0      *     6      *     7         *
      ************************************************************
      *     TPRIME     *     0      *     4      *     4         *
      ************************************************************
```

```
                    *******************
                    *  TABLE  NO 42   *
                    *******************

           TOTAL NUMBER OF REJECTION OUT OF 100 SAMPLES
           SIMULATED WITH THE GIVEN POPULATION PARAMETERS
           FOR 2 SAMPLES OF SIZE

             N1=  2                              N2=  4

             MU1= 8.000                          MU2=10.000

         SIGMA1= 2.000                         SIGMA2= 2.000

      BETA1=SIGMA1/MU1= 0.250            BETA2=SIGMA2/MU2= 0.200

        THETA=MU1/MU2= 0.800             PSI=BETA1/BETA2= 1.250

      ********************************************************
      *                  *          ALPHA-LEVEL              *
      * TEST STATISTIC   *************************************
      *                  *   0.01    *   0.05    *   0.10    *
      ********************************************************
      *      LAMBDA      *     3     *    14     *    29     *
      ********************************************************
      *        U         *     0     *     0     *     0     *
      ********************************************************
      *        F         *     2     *     6     *     9     *
      ********************************************************
      *        T         *     3     *    18     *    28     *
      ********************************************************
      *      TPRIME      *     0     *     2     *     6     *
      ********************************************************
```

```
                    *******************
                    *  TABLE   NO 43  *
                    *******************

            TOTAL NUMBER OF REJECTION OUT OF 100 SAMPLES
            SIMULATED WITH THE GIVEN POPULATION PARAMETERS
            FOR 2 SAMPLES OF SIZE

             N1=  2                                  N2=  4

            MU1= 4.000                              MU2= 6.000

          SIGMA1= 2.000                          SIGMA2= 2.500

         BETA1=SIGMA1/MU1= 0.500            BETA2=SIGMA2/MU2= 0.416

           THETA=MU1/MU2= 0.670             PSI=BETA1/BETA2= 1.200


         ***************************************************
         *                *            ALPHA-LEVEL         *
         * TEST STATISTIC **********************************
         *                *   0.01   *   0.05   *   0.10   *
         ***************************************************
         *     LAMBDA     *    4     *    19    *    25    *
         ***************************************************
         *       U        *    0     *    0     *    3     *
         ***************************************************
         *       F        *    0     *    4     *    10    *
         ***************************************************
         *       T        *    1     *    11    *    24    *
         ***************************************************
         *     TPRIME     *    0     *    5     *    12    *
         ***************************************************
```

```
                         ******************
                         *  TABLE  NO 44  *
                         ******************

           TOTAL NUMBER OF REJECTION OUT OF 100 SAMPLES
           SIMULATED WITH THE GIVEN POPULATION PARAMETERS
           FOR 2 SAMPLES OF SIZE

             N1=  2                                 N2=  4

           MU1= 1.000                              MU2= 3.000

        SIGMA1= 2.000                           SIGMA2= 4.000

      BETA1=SIGMA1/MU1= 2.000              BETA2=SIGMA2/MU2= 1.333

        THETA=MU1/MU2= 0.333               PSI=BETA1/BETA2= 1.500


      *********************************************
      *              *          ALPHA-LEVEL       *
      * TEST STATISTIC ******************************
      *              *  0.01  *  0.05  *  0.10  *
      *********************************************
      *    LAMBDA    *   3    *   6    *   17   *
      *********************************************
      *      U       *   2    *   10   *   16   *
      *********************************************
      *      F       *   0    *   2    *   7    *
      *********************************************
      *      T       *   3    *   8    *   13   *
      *********************************************
      *    TPRIME    *   3    *   5    *   9    *
      *********************************************
```

```
                    ******************
                    *  TABLE  NO 45  *
                    ******************

          TOTAL NUMBER OF REJECTION OUT OF 100 SAMPLES
          SIMULATED WITH THE GIVEN POPULATION PARAMETERS
          FOR 2 SAMPLES OF SIZE

            N1=  2                                   N2=  4

           MU1= 1.000                               MU2= 2.000

        SIGMA1= 3.000                            SIGMA2= 6.000

      BETA1=SIGMA1/MU1= 3.000            BETA2=SIGMA2/MU2= 3.000

        THETA=MU1/MU2= 2.000             PSI=BETA1/BETA2= 1.000

      *************************************************
      *               *            ALPHA-LEVEL        *
      * TEST STATISTIC *******************************
      *               *   0.01   *   0.05   *   0.10  *
      *************************************************
      *    LAMBDA     *    1     *    9     *   15    *
      *************************************************
      *      U        *    3     *    8     *   15    *
      *************************************************
      *      F        *    0     *    2     *    9    *
      *************************************************
      *      T        *    0     *    2     *    5    *
      *************************************************
      *    TPRIME     *    0     *    2     *    5    *
      *************************************************
```

```
                    ******************
                    *  TABLE  NO 46  *
                    ******************

          TOTAL NUMBER OF REJECTION OUT OF 100 SAMPLES
          SIMULATED WITH THE GIVEN POPULATION PARAMETERS
          FOR 2 SAMPLES OF SIZE

            N1=  2                               N2=  4

          MU1= 0.800                          MU2= 0.600

       SIGMA1= 4.000                       SIGMA2= 3.000

     BETA1=SIGMA1/MU1= 5.000            BETA2=SIGMA2/MU2= 5.000

       THETA=MU1/MU2= 1.333             PSI=BETA1/BETA2= 1.000

     ************************************************
     *               *         ALPHA-LEVEL          *
     * TEST STATISTIC ********************************
     *               *  0.01  *  0.05  *  0.10  *
     ************************************************
     *    LAMBDA     *   0    *   6    *   11   *
     ************************************************
     *      U        *   1    *   9    *   13   *
     ************************************************
     *      F        *   1    *   8    *    9   *
     ************************************************
     *      T        *   3    *   9    *   16   *
     ************************************************
     *    TPRIME     *   1    *   4    *    8   *
     ************************************************
```

```
                    *****************
                    *  TABLE  NO 47  *
                    *****************

          TOTAL NUMBER OF REJECTION OUT OF 100 SAMPLES
          SIMULATED WITH THE GIVEN POPULATION PARAMETERS
          FOR 2 SAMPLES OF SIZE

           N1=  2                               N2=  4

           MU1= 1.000                           MU2= 2.000

         SIGMA1= 0.100                       SIGMA2= 0.200

      BETA1=SIGMA1/MU1= 0.100           BETA2=SIGMA2/MU2= 0.100

        THETA=MU1/MU2= 0.500              PSI=BETA1/BETA2= 1.000

      *************************************************************
      *                  *          ALPHA-LEVEL                   *
      * TEST STATISTIC   ******************************************
      *                  *    0.01    *    0.05    *    0.10      *
      *************************************************************
      *     LAMBDA       *    100     *    100     *    100       *
      *************************************************************
      *       U          *     0      *     0      *     0        *
      *************************************************************
      *       F          *     0      *     7      *    12        *
      *************************************************************
      *       T          *    98      *    100     *    100       *
      *************************************************************
      *     TPRIME       *    31      *    82      *    99        *
      *************************************************************
```

```
                    ******************
                    *  TABLE  NO 48  *
                    ******************

          TOTAL NUMBER OF REJECTION OUT OF 100 SAMPLES
          SIMULATED WITH THE GIVEN POPULATION PARAMETERS
          FOR 2 SAMPLES OF SIZE

          N1=  2                                N2=  4

          MU1= 1.000                           MU2= 2.000

       SIGMA1= 0.500                        SIGMA2= 1.200

     BETA1=SIGMA1/MU1= 0.500           BETA2=SIGMA2/MU2= 0.600

       THETA=MU1/MU2= 0.500            PSI=BETA1/BETA2= 0.833

     ***************************************************
     *                *            ALPHA-LEVEL         *
     *  TEST STATISTIC ********************************
     *                *  0.01  *   0.05  *   0.10     *
     ***************************************************
     *     LAMBDA     *     9  *    32   *    52      *
     ***************************************************
     *       U        *     0  *     1   *     6      *
     ***************************************************
     *       F        *     0  *     5   *    14      *
     ***************************************************
     *       T        *     2  *    21   *    34      *
     ***************************************************
     *     TPRIME     *     1  *     5   *    21      *
     ***************************************************
```

```
                    ******************
                    *  TABLE  NO 49  *
                    ******************

          TOTAL NUMBER OF REJECTION OUT OF 100 SAMPLES
          SIMULATED WITH THE GIVEN POPULATION PARAMETERS
          FOR 2 SAMPLES OF SIZE

           N1=  2                                 N2=  4

          MU1= 1.000                             MU2= 2.000

       SIGMA1= 1.000                          SIGMA2= 4.000

    BETA1=SIGMA1/MU1= 1.000             BETA2=SIGMA2/MU2= 2.000

      THETA=MU1/MU2= 0.500              PSI=BETA1/BETA2= 0.500

    **************************************************
    *              *         ALPHA-LEVEL             *
    * TEST STATISTIC *********************************
    *              *  0.01   *  0.05   *  0.10   *
    **************************************************
    *    LAMBDA    *    5    *   22    *   44    *
    **************************************************
    *      U       *    5    *   14    *   34    *
    **************************************************
    *      F       *    1    *   11    *   17    *
    **************************************************
    *      T       *    0    *    5    *    8    *
    **************************************************
    *    TPRIME    *    0    *    3    *    8    *
    **************************************************
```

```
                    ******************
                    *  TABLE  NO 50  *
                    ******************

            TOTAL NUMBER OF REJECTION OUT OF 100 SAMPLES
            SIMULATED WITH THE GIVEN POPULATION PARAMETERS
            FOR 2 SAMPLES OF SIZE

             N1=  2                            N2=  4

            MU1= 1.000                       MU2= 2.000

         SIGMA1= 1.500                    SIGMA2= 2.000

         BETA1=SIGMA1/MU1= 1.500        BETA2=SIGMA2/MU2= 1.000

          THETA=MU1/MU2= 0.500         PSI=BETA1/BETA2= 1.500

         ***********************************************************
         *                *            ALPHA-LEVEL                 *
         * TEST STATISTIC ******************************************
         *                *   0.01   *   0.05   *   0.10   *
         ***********************************************************
         *     LAMBDA     *    0     *    7     *    13    *
         ***********************************************************
         *       U        *    2     *    7     *    12    *
         ***********************************************************
         *       F        *    0     *    2     *    5     *
         ***********************************************************
         *       T        *    1     *    7     *    10    *
         ***********************************************************
         *     TPRIME     *    0     *    4     *    5     *
         ***********************************************************
```

```
                    ******************
                    *  TABLE  NO 51  *
                    ******************

         TOTAL NUMBER OF REJECTION OUT OF 100 SAMPLES
         SIMULATED WITH THE GIVEN POPULATION PARAMETERS
         FOR 2 SAMPLES OF SIZE

           N1=  2                           N2=  4

         MU1= 1.000                        MU2= 2.000

      SIGMA1= 2.000                     SIGMA2= 2.000

    BETA1=SIGMA1/MU1= 2.000          BETA2=SIGMA2/MU2= 1.000

      THETA=MU1/MU2= 0.500           PSI=BETA1/BETA2= 2.000

    ***************************************************
    *                *          ALPHA-LEVEL           *
    * TEST STATISTIC **********************************
    *                *   0.01   *   0.05   *   0.10   *
    ***************************************************
    *     LAMBDA     *    1     *    4     *    8     *
    ***************************************************
    *       U        *    0     *    5     *   10     *
    ***************************************************
    *       F        *    0     *    7     *   14     *
    ***************************************************
    *       T        *    2     *   11     *   16     *
    ***************************************************
    *     TPRIME     *    1     *    2     *    9     *
    ***************************************************
```

```
                    ******************
                    *  TABLE  NO 52  *
                    ******************

          TOTAL NUMBER OF REJECTION OUT OF 100 SAMPLES
          SIMULATED WITH THE GIVEN POPULATION PARAMETERS
          FOR 2 SAMPLES OF SIZE

            N1=  6                                N2= 10

          MU1= 8.000                           MU2=10.000

      SIGMA1= 2.000                          SIGMA2= 2.500

  BETA1=SIGMA1/MU1= 0.250             BETA2=SIGMA2/MU2= 0.250

    THETA=MU1/MU2= 0.800              PSI=BETA1/BETA2= 1.000

  *****************************************************
  *                 *          ALPHA-LEVEL            *
  * TEST STATISTIC  ***********************************
  *                 *   0.01   *   0.05   *   0.10    *
  *****************************************************
  *     LAMBDA      *    13    *    35    *    55     *
  *****************************************************
  *       U         *     0    *     0    *     0     *
  *****************************************************
  *       F         *     0    *     9    *    14     *
  *****************************************************
  *       T         *    13    *    27    *    46     *
  *****************************************************
  *     TPRIME      *     7    *    23    *    42     *
  *****************************************************
```

```
                    ********************
                    *  TABLE  NO 53    *
                    ********************

           TOTAL NUMBER OF REJECTION OUT OF 100 SAMPLES
           SIMULATED WITH THE GIVEN POPULATION PARAMETERS
           FOR 2 SAMPLES OF SIZE

             N1=  6                             N2= 10

           MU1= 2.000                          MU2= 4.000

         SIGMA1= 2.000                       SIGMA2= 4.000

      BETA1=SIGMA1/MU1= 1.000           BETA2=SIGMA2/MU2= 1.000

        THETA=MU1/MU2= 0.500            PSI=BETA1/BETA2= 1.000

      ************************************************************
      *                *            ALPHA-LEVEL                  *
      * TEST STATISTIC *******************************************
      *                *   0.01   *    0.05    *    0.10    *
      ************************************************************
      *     LAMBDA     *    26    *     53     *     72     *
      ************************************************************
      *       U        *    15    *     35     *     53     *
      ************************************************************
      *       F        *     6    *     24     *     45     *
      ************************************************************
      *       T        *     0    *     15     *     37     *
      ************************************************************
      *     TPRIME     *     1    *     21     *     38     *
      ************************************************************
```

```
                    ******************
                    *  TABLE  NO 54  *
                    ******************

            TOTAL NUMBER OF REJECTION OUT OF 100 SAMPLES
            SIMULATED WITH THE GIVEN POPULATION PARAMETERS
            FOR 2 SAMPLES OF SIZE

             N1=  6                             N2= 10

            MU1= 1.000                         MU2= 1.000

          SIGMA1= 2.000                     SIGMA2= 4.000

         BETA1=SIGMA1/MU1= 2.000         BETA2=SIGMA2/MU2= 4.000

          THETA=MU1/MU2= 1.000          PSI=BETA1/BETA2= 0.500

         **********************************************
         *               *          ALPHA-LEVEL        *
         * TEST STATISTIC ******************************
         *               *  0.01  *  0.05  *   0.10    *
         **********************************************
         *     LAMBDA    *    9   *   34   *    47     *
         **********************************************
         *       U       *   11   *   31   *    45     *
         **********************************************
         *       F       *    7   *   31   *    45     *
         **********************************************
         *       T       *    0   *    3   *     5     *
         **********************************************
         *     TPRIME    *    0   *    2   *     5     *
         **********************************************
```

```
                  ******************
                  *  TABLE  NO 55  *
                  ******************

          TOTAL NUMBER OF REJECTION OUT OF 100 SAMPLES
          SIMULATED WITH THE GIVEN POPULATION PARAMETERS
          FOR 2 SAMPLES OF SIZE

          N1=  6                                N2= 10

          MU1= 8.000                            MU2=10.000

       SIGMA1= 2.000                         SIGMA2= 2.000

     BETA1=SIGMA1/MU1= 0.250           BETA2=SIGMA2/MU2= 0.200

       THETA=MU1/MU2= 0.800            PSI=BETA1/BETA2= 1.250

     ********************************************
     *               *      ALPHA-LEVEL         *
     * TEST STATISTIC ***************************
     *               *  0.01  *  0.05  *  0.10  *
     ********************************************
     *     LAMBDA    *   14   *   43   *   56   *
     ********************************************
     *       U       *   0    *   0    *   0    *
     ********************************************
     *       F       *   1    *   6    *   9    *
     ********************************************
     *       T       *   19   *   44   *   56   *
     ********************************************
     *     TPRIME    *   3    *   35   *   52   *
     ********************************************
```

```
                    ******************
                    *  TABLE  NO 56  *
                    ******************

          TOTAL NUMBER OF REJECTION OUT OF 100 SAMPLES
          SIMULATED WITH THE GIVEN POPULATION PARAMETERS
          FOR 2 SAMPLES OF SIZE

           N1=  6                                N2= 10

          MU1= 4.000                            MU2= 6.000

       SIGMA1= 2.000                         SIGMA2= 2.500

     BETA1=SIGMA1/MU1= 0.500             BETA2=SIGMA2/MU2= 0.416

       THETA=MU1/MU2= 0.670             PSI=BETA1/BETA2= 1.200

     **********************************************************
     *              *            ALPHA-LEVEL                  *
     * TEST STATISTIC *****************************************
     *              *   0.01   *   0.05   *   0.10   *
     **********************************************************
     *    LAMBDA    *    14    *    32    *    47    *
     **********************************************************
     *      U       *     0    *     2    *     8    *
     **********************************************************
     *      F       *     1    *     5    *     8    *
     **********************************************************
     *      T       *    10    *    32    *    45    *
     **********************************************************
     *    TPRIME    *     4    *    27    *    41    *
     **********************************************************
```

```
                    ******************
                    *  TABLE  NO 57  *
                    ******************

            TOTAL NUMBER OF REJECTION OUT OF 100 SAMPLES
            SIMULATED WITH THE GIVEN POPULATION PARAMETERS
            FOR 2 SAMPLES OF SIZE

             N1=  6                              N2= 10

            MU1= 1.000                          MU2= 3.000

          SIGMA1= 2.000                       SIGMA2= 4.000

         BETA1=SIGMA1/MU1= 2.000          BETA2=SIGMA2/MU2= 1.333

          THETA=MU1/MU2= 0.333            PSI=BETA1/BETA2= 1.500

         ***********************************************
         *               *         ALPHA-LEVEL         *
         * TEST STATISTIC *******************************
         *               *  0.01   *  0.05   *  0.10   *
         ***********************************************
         *    LAMBDA     *   20    *   52    *   68    *
         ***********************************************
         *      U        *   15    *   44    *   64    *
         ***********************************************
         *      F        *    7    *   30    *   50    *
         ***********************************************
         *      T        *    5    *   16    *   24    *
         ***********************************************
         *    TPRIME     *    2    *   15    *   22    *
         ***********************************************
```

```
                    ******************
                    *  TABLE  NO 58  *
                    ******************

          TOTAL NUMBER OF REJECTION OUT OF 100 SAMPLES
          SIMULATED WITH THE GIVEN POPULATION PARAMETERS
          FOR 2 SAMPLES OF SIZE

           N1=  6                                N2= 10

          MU1= 1.000                            MU2= 2.000

       SIGMA1= 3.000                         SIGMA2= 6.000

    BETA1=SIGMA1/MU1= 3.000            BETA2=SIGMA2/MU2= 3.000

      THETA=MU1/MU2= 2.000             PSI=BETA1/BETA2= 1.000

    ***************************************************
    *                *         ALPHA-LEVEL            *
    * TEST STATISTIC **********************************
    *                *  0.01   *  0.05   *  0.10      *
    ***************************************************
    *     LAMBDA     *    7    *   31    *   55       *
    ***************************************************
    *       U        *    8    *   30    *   53       *
    ***************************************************
    *       F        *    7    *   22    *   39       *
    ***************************************************
    *       T        *    0    *    1    *    3       *
    ***************************************************
    *     TPRIME     *    0    *    1    *    6       *
    ***************************************************
```

```
                    ******************
                    *  TABLE  NO 59  *
                    ******************

          TOTAL NUMBER OF REJECTION OUT OF 100 SAMPLES
          SIMULATED WITH THE GIVEN POPULATION PARAMETERS
          FOR 2 SAMPLES OF SIZE

            N1=  6                             N2= 10

          MU1= 0.800                          MU2= 0.600

        SIGMA1= 4.000                       SIGMA2= 3.000

      BETA1=SIGMA1/MU1= 5.000          BETA2=SIGMA2/MU2= 5.000

        THETA=MU1/MU2= 1.333          PSI=BETA1/BETA2= 1.000

      ***************************************************
      *                *          ALPHA-LEVEL            *
      *  TEST STATISTIC ********************************
      *                *   0.01  *   0.05   *   0.10    *
      ***************************************************
      *     LAMBDA     *    5    *    10    *    17     *
      ***************************************************
      *       U        *    7    *    13    *    20     *
      ***************************************************
      *       F        *    5    *    12    *    19     *
      ***************************************************
      *       T        *    0    *     6    *    12     *
      ***************************************************
      *     TPRIME     *    0    *     1    *     4     *
      ***************************************************
```

```
                    ******************
                    *  TABLE  NO 60  *
                    ******************

            TOTAL NUMBER OF REJECTION OUT OF 100 SAMPLES
            SIMULATED WITH THE GIVEN POPULATION PARAMETERS
            FOR 2 SAMPLES OF SIZE

            N1=  6                                N2= 10

            MU1= 1.000                            MU2= 2.000

          SIGMA1= 0.100                         SIGMA2= 0.200

        BETA1=SIGMA1/MU1= 0.100             BETA2=SIGMA2/MU2= 0.100

          THETA=MU1/MU2= 0.500              PSI=BETA1/BETA2= 1.000

        ****************************************************
        *                *          ALPHA-LEVEL            *
        * TEST STATISTIC ***********************************
        *                *  0.01   *  0.05   *  0.10       *
        ****************************************************
        *     LAMBDA     *  100    *  100    *  100        *
        ****************************************************
        *       U        *    0    *    0    *   53        *
        ****************************************************
        *       F        *   18    *   35    *   54        *
        ****************************************************
        *       T        *  100    *  100    *  100        *
        ****************************************************
        *     TPRIME     *  100    *  100    *  100        *
        ****************************************************
```

```
                    ******************
                    *  TABLE  NO 61  *
                    ******************

          TOTAL NUMBER OF REJECTION OUT OF 100 SAMPLES
          SIMULATED WITH THE GIVEN POPULATION PARAMETERS
          FOR 2 SAMPLES OF SIZE

          N1=  6                                N2= 10

          MU1= 1.000                           MU2= 2.000

       SIGMA1= 0.500                        SIGMA2= 1.200

     BETA1=SIGMA1/MU1= 0.500          BETA2=SIGMA2/MU2= 0.600

       THETA=MU1/MU2= 0.500             PSI=BETA1/BETA2= 0.833

     **********************************************************
     *                *            ALPHA-LEVEL               *
     * TEST STATISTIC ****************************************
     *                *   0.01    *   0.05    *   0.10       *
     **********************************************************
     *     LAMBDA     *    57     *    88     *    97        *
     **********************************************************
     *       U        *     4     *    24     *    52        *
     **********************************************************
     *       F        *    12     *    43     *    61        *
     **********************************************************
     *       T        *    18     *    43     *    61        *
     **********************************************************
     *     TPRIME     *    17     *    47     *    67        *
     **********************************************************
```

```
                    *****************
                    *  TABLE  NO 62  *
                    *****************

            TOTAL NUMBER OF REJECTION OUT OF 100 SAMPLES
            SIMULATED WITH THE GIVEN POPULATION PARAMETERS
            FOR 2 SAMPLES OF SIZE

             N1=  6                             N2= 10

            MU1= 1.000                         MU2= 2.000

          SIGMA1= 1.000                      SIGMA2= 4.000

         BETA1=SIGMA1/MU1= 1.000           BETA2=SIGMA2/MU2= 2.000

          THETA=MU1/MU2= 0.500             PSI=BETA1/BETA2= 0.500

         *********************************************************
         *                 *            ALPHA-LEVEL             *
         *  TEST STATISTIC ***************************************
         *                 *   0.01   *   0.05   *   0.10       *
         *********************************************************
         *      LAMBDA     *    67    *    90    *    97        *
         *********************************************************
         *        U        *    44    *    80    *    90        *
         *********************************************************
         *        F        *    60    *    89    *    94        *
         *********************************************************
         *        T        *     1    *     4    *    11        *
         *********************************************************
         *      TPRIME     *     2    *     7    *    18        *
         *********************************************************
```

```
                 ******************
                 *  TABLE  NO 63  *
                 ******************

     TOTAL NUMBER OF REJECTION OUT OF 100 SAMPLES
     SIMULATED WITH THE GIVEN POPULATION PARAMETERS
     FOR 2 SAMPLES OF SIZE

      N1=  6                                 N2= 10

     MU1= 1.000                             MU2= 2.000

  SIGMA1= 1.500                         SIGMA2= 2.000

BETA1=SIGMA1/MU1= 1.500          BETA2=SIGMA2/MU2= 1.000

  THETA=MU1/MU2= 0.500          PSI=BETA1/BETA2= 1.500

***************************************************
*                *          ALPHA-LEVEL           *
* TEST STATISTIC **********************************
*                *   0.01   *   0.05   *   0.10   *
***************************************************
*     LAMBDA     *     8    *    17    *    26    *
***************************************************
*       U        *     3    *    11    *    25    *
***************************************************
*       F        *     2    *     9    *    20    *
***************************************************
*       T        *     4    *    21    *    29    *
***************************************************
*     TPRIME     *     1    *    16    *    23    *
***************************************************
```

```
                 ******************
                 *  TABLE  NO 64  *
                 ******************

          TOTAL NUMBER OF REJECTION OUT OF 100 SAMPLES
          SIMULATED WITH THE GIVEN POPULATION PARAMETERS
          FOR 2 SAMPLES OF SIZE

            N1=  6                               N2= 10

          MU1= 1.000                           MU2= 2.000

       SIGMA1= 2.000                        SIGMA2= 2.000

     BETA1=SIGMA1/MU1= 2.000            BETA2=SIGMA2/MU2= 1.000

       THETA=MU1/MU2= 0.500              PSI=BETA1/BETA2= 2.000

     ***********************************************
     *                *         ALPHA-LEVEL        *
     * TEST STATISTIC ******************************
     *                *  0.01  *  0.05  *  0.10    *
     ***********************************************
     *     LAMBDA     *    1   *    6   *   13     *
     ***********************************************
     *       U        *    2   *    4   *   13     *
     ***********************************************
     *       F        *    0   *    2   *   11     *
     ***********************************************
     *       T        *    5   *   14   *   25     *
     ***********************************************
     *     TPRIME     *    3   *    9   *   18     *
     ***********************************************
```

```
                 ******************
                 *  TABLE  NO 65  *
                 ******************

        TOTAL NUMBER OF REJECTION OUT OF 100 SAMPLES
        SIMULATED WITH THE GIVEN POPULATION PARAMETERS
        FOR 2 SAMPLES OF SIZE

         N1=  6                         N2= 20

        MU1= 8.000                     MU2=10.000

     SIGMA1= 2.000                  SIGMA2= 2.500

  BETA1=SIGMA1/MU1= 0.250        BETA2=SIGMA2/MU2= 0.250

    THETA=MU1/MU2= 0.800        PSI=BETA1/BETA2= 1.000

  ******************************************************
  *               *          ALPHA-LEVEL               *
  * TEST STATISTIC **************************************
  *               *   0.01   *   0.05   *   0.10     *
  ******************************************************
  *    LAMBDA     *    25    *    44    *    59      *
  ******************************************************
  *      U        *     0    *     0    *     0      *
  ******************************************************
  *      F        *     1    *     8    *    12      *
  ******************************************************
  *      T        *    16    *    35    *    54      *
  ******************************************************
  *    TPRIME     *    11    *    36    *    56      *
  ******************************************************
```

```
                    ******************
                    *  TABLE  NO 66  *
                    ******************

          TOTAL NUMBER OF REJECTION OUT OF 100 SAMPLES
          SIMULATED WITH THE GIVEN POPULATION PARAMETERS
          FOR 2 SAMPLES OF SIZE

            N1=  6                            N2= 20

          MU1= 2.000                        MU2= 4.000

       SIGMA1= 2.000                     SIGMA2= 4.000

   BETA1=SIGMA1/MU1= 1.000           BETA2=SIGMA2/MU2= 1.000

     THETA=MU1/MU2= 0.500           PSI=BETA1/BETA2= 1.000

   ************************************************
   *                *          ALPHA-LEVEL         *
   * TEST STATISTIC ********************************
   *                *  0.01  *  0.05  *  0.10  *
   ************************************************
   *     LAMBDA     *   35   *   65   *   80   *
   ************************************************
   *       U        *   12   *   43   *   65   *
   ************************************************
   *       F        *    8   *   31   *   46   *
   ************************************************
   *       T        *    6   *   17   *   27   *
   ************************************************
   *     TPRIME     *    8   *   33   *   49   *
   ************************************************
```

```
                    ******************
                    *  TABLE  NO 67  *
                    ******************

          TOTAL NUMBER OF REJECTION OUT OF 100 SAMPLES
          SIMULATED WITH THE GIVEN POPULATION PARAMETERS
          FOR 2 SAMPLES OF SIZE

            N1=  6                             N2= 20

          MU1= 1.000                          MU2= 1.000

       SIGMA1= 2.000                       SIGMA2= 4.000

     BETA1=SIGMA1/MU1= 2.000          BETA2=SIGMA2/MU2= 4.000

       THETA=MU1/MU2= 1.000          PSI=BETA1/BETA2= 0.500

     ***************************************************
     *               *          ALPHA-LEVEL            *
     * TEST STATISTIC ***********************************
     *               *   0.01  *   0.05  *   0.10      *
     ***************************************************
     *     LAMBDA    *    14   *    42   *    60       *
     ***************************************************
     *       U       *     9   *    32   *    49       *
     ***************************************************
     *       F       *     9   *    31   *    49       *
     ***************************************************
     *       T       *     0   *     0   *     0       *
     ***************************************************
     *     TPRIME    *     0   *     3   *     8       *
     ***************************************************
```

```
                    *****************
                    *  TABLE  NO 68  *
                    *****************

           TOTAL NUMBER OF REJECTION OUT OF 100 SAMPLES
           SIMULATED WITH THE GIVEN POPULATION PARAMETERS
           FOR 2 SAMPLES OF SIZE

            N1=  6                              N2= 20

            MU1= 8.000                          MU2=10.000

         SIGMA1= 2.000                       SIGMA2= 2.000

       BETA1=SIGMA1/MU1= 0.250           BETA2=SIGMA2/MU2= 0.200

         THETA=MU1/MU2= 0.800            PSI=BETA1/BETA2= 1.250

       **************************************************
       *                *           ALPHA-LEVEL         *
       * TEST STATISTIC *********************************
       *                *   0.01   *   0.05   *   0.10  *
       **************************************************
       *     LAMBDA     *    29    *    57    *    69   *
       **************************************************
       *       U        *     0    *     0    *     0   *
       **************************************************
       *       F        *     0    *     7    *    13   *
       **************************************************
       *       T        *    34    *    58    *    71   *
       **************************************************
       *     TPRIME     *    20    *    46    *    62   *
       **************************************************
```

```
                    ******************
                    *  TABLE  NO 69  *
                    ******************

            TOTAL NUMBER OF REJECTION OUT OF 100 SAMPLES
            SIMULATED WITH THE GIVEN POPULATION PARAMETERS
            FOR 2 SAMPLES OF SIZE

             N1=  6                              N2= 20

            MU1= 4.000                          MU2= 6.000

         SIGMA1= 2.000                       SIGMA2= 2.500

         BETA1=SIGMA1/MU1= 0.500          BETA2=SIGMA2/MU2= 0.416

          THETA=MU1/MU2= 0.670           PSI=BETA1/BETA2= 1.200

         ****************************************************
         *                *          ALPHA-LEVEL            *
         * TEST STATISTIC ***********************************
         *                *   0.01  *   0.05  *   0.10      *
         ****************************************************
         *     LAMBDA     *    23   *    49   *    61       *
         ****************************************************
         *       U        *     0   *     4   *     9       *
         ****************************************************
         *       F        *     0   *     5   *     8       *
         ****************************************************
         *       T        *    18   *    44   *    56       *
         ****************************************************
         *     TPRIME     *    11   *    43   *    56       *
         ****************************************************
```

```
                   ******************
                   *  TABLE  NO 70  *
                   ******************

         TOTAL NUMBER OF REJECTION OUT OF 100 SAMPLES
         SIMULATED WITH THE GIVEN POPULATION PARAMETERS
         FOR 2 SAMPLES OF SIZE

           N1=  6                          N2= 20

         MU1= 1.000                     MU2= 3.000

      SIGMA1= 2.000                  SIGMA2= 4.000

    BETA1=SIGMA1/MU1= 2.000         BETA2=SIGMA2/MU2= 1.333

      THETA=MU1/MU2= 0.333         PSI=BETA1/BETA2= 1.500

    *****************************************************
    *               *           ALPHA-LEVEL              *
    * TEST STATISTIC *************************************
    *               *   0.01   *   0.05   *   0.10   *
    *****************************************************
    *     LAMBDA    *    40    *    65    *    76    *
    *****************************************************
    *       U       *    31    *    62    *    76    *
    *****************************************************
    *       F       *    16    *    42    *    53    *
    *****************************************************
    *       T       *     1    *    11    *    27    *
    *****************************************************
    *     TPRIME    *     7    *    33    *    48    *
    *****************************************************
```

```
                 *****************
                 *  TABLE  NO 71  *
                 *****************

        TOTAL NUMBER OF REJECTION OUT OF 100 SAMPLES
        SIMULATED WITH THE GIVEN POPULATION PARAMETERS
        FOR 2 SAMPLES OF SIZE

         N1=  6                              N2= 20

        MU1= 1.000                          MU2= 2.000

     SIGMA1= 3.000                       SIGMA2= 6.000

  BETA1=SIGMA1/MU1= 3.000           BETA2=SIGMA2/MU2= 3.000

    THETA=MU1/MU2= 2.000           PSI=BETA1/BETA2= 1.000

  **************************************************
  *                *          ALPHA-LEVEL          *
  * TEST STATISTIC *********************************
  *                *  0.01   *  0.05   *  0.10   *
  **************************************************
  *    LAMBDA      *   22    *   47    *   65    *
  **************************************************
  *      U         *   13    *   36    *   50    *
  **************************************************
  *      F         *    8    *   33    *   53    *
  **************************************************
  *      T         *    0    *    0    *    3    *
  **************************************************
  *    TPRIME      *    0    *    2    *    9    *
  **************************************************
```

```
                   ******************
                   *  TABLE  NO 72  *
                   ******************

        TOTAL NUMBER OF REJECTION OUT OF 100 SAMPLES
        SIMULATED WITH THE GIVEN POPULATION PARAMETERS
        FOR 2 SAMPLES OF SIZE

        N1=  6                              N2= 20

        MU1= 0.800                         MU2= 0.600

      SIGMA1= 4.000                     SIGMA2= 3.000

  BETA1=SIGMA1/MU1= 5.000        BETA2=SIGMA2/MU2= 5.000

    THETA=MU1/MU2= 1.333        PSI=BETA1/BETA2= 1.000


  **********************************************
  *               *         ALPHA-LEVEL        *
  * TEST STATISTIC ******************************
  *               *  0.01  *  0.05  *  0.10    *
  **********************************************
  *    LAMBDA     *   1    *   11   *   16     *
  **********************************************
  *      U        *   4    *   14   *   21     *
  **********************************************
  *      F        *   1    *    9   *   20     *
  **********************************************
  *      T        *   1    *    4   *   13     *
  **********************************************
  *    TPRIME     *   1    *    3   *    5     *
  **********************************************
```

```
                     ******************
                     *  TABLE  NO 73  *
                     ******************

              TOTAL NUMBER OF REJECTION OUT OF 100 SAMPLES
              SIMULATED WITH THE GIVEN POPULATION PARAMETERS
              FOR 2 SAMPLES OF SIZE

               N1=  6                             N2= 20

              MU1= 1.000                        MU2= 2.000

           SIGMA1= 0.100                     SIGMA2= 0.200

         BETA1=SIGMA1/MU1= 0.100         BETA2=SIGMA2/MU2= 0.100

           THETA=MU1/MU2= 0.500          PSI=BETA1/BETA2= 1.000


         ************************************************
         *              *        ALPHA-LEVEL            *
         * TEST STATISTIC ********************************
         *              *  0.01  *  0.05  *   0.10      *
         ************************************************
         *    LAMBDA    *  100   *  100   *   100       *
         ************************************************
         *      U       *    0   *    0   *    68       *
         ************************************************
         *      F       *   11   *   30   *    49       *
         ************************************************
         *      T       *  100   *  100   *   100       *
         ************************************************
         *    TPRIME    *  100   *  100   *   100       *
         ************************************************
```

```
                 *****************
                 *  TABLE  NO 74 *
                 *****************

        TOTAL NUMBER OF REJECTION OUT OF 100 SAMPLES
        SIMULATED WITH THE GIVEN POPULATION PARAMETERS
        FOR 2 SAMPLES OF SIZE

         N1=  6                           N2= 20

        MU1= 1.000                      MU2= 2.000

     SIGMA1= 0.500                   SIGMA2= 1.200

  BETA1=SIGMA1/MU1= 0.500         BETA2=SIGMA2/MU2= 0.600

     THETA=MU1/MU2= 0.500        PSI=BETA1/BETA2= 0.833

  **********************************************************
  *                 *            ALPHA-LEVEL               *
  * TEST STATISTIC  ****************************************
  *                 *   0.01    *   0.05    *   0.10       *
  **********************************************************
  *     LAMBDA      *    74     *    89     *    96        *
  **********************************************************
  *       U         *     3     *    31     *    60        *
  **********************************************************
  *       F         *    18     *    50     *    69        *
  **********************************************************
  *       T         *    16     *    41     *    61        *
  **********************************************************
  *     TPRIME      *    36     *    72     *    84        *
  **********************************************************
```

```
                    *****************
                    *  TABLE  NO 75  *
                    *****************

             TOTAL NUMBER OF REJECTION OUT OF 100 SAMPLES
             SIMULATED WITH THE GIVEN POPULATION PARAMETERS
             FOR 2 SAMPLES OF SIZE

              N1=   6                              N2= 20

             MU1= 1.000                          MU2= 2.000

          SIGMA1= 1.000                       SIGMA2= 4.000

        BETA1=SIGMA1/MU1= 1.000          BETA2=SIGMA2/MU2= 2.000

          THETA=MU1/MU2= 0.500           PSI=BETA1/BETA2= 0.500

        ***************************************************
        *                  *        ALPHA-LEVEL           *
        * TEST STATISTIC *********************************
        *                  *  0.01   *  0.05   *  0.10    *
        ***************************************************
        *     LAMBDA       *   84    *   98    *   99     *
        ***************************************************
        *       U          *   59    *   89    *   95     *
        ***************************************************
        *       F          *   62    *   94    *   99     *
        ***************************************************
        *       T          *    0    *    0    *    4     *
        ***************************************************
        *     TPRIME       *    3    *   14    *   28     *
        ***************************************************
```

```
                    *******************
                    *  TABLE  NC 76   *
                    *******************

        TOTAL NUMBER OF REJECTION OUT OF 100 SAMPLES
        SIMULATED WITH THE GIVEN POPULATION PARAMETERS
        FOR 2 SAMPLES OF SIZE


          N1=  6                                N2= 20

        MU1= 1.000                            MU2= 2.000

     SIGMA1= 1.500                         SIGMA2= 2.000

   BETA1=SIGMA1/MU1= 1.500            BETA2=SIGMA2/MU2= 1.000

     THETA=MU1/MU2= 0.500            PSI=BETA1/BETA2= 1.500


   ***************************************************
   *                *          ALPHA-LEVEL           *
   * TEST STATISTIC **********************************
   *                *   0.01   *   0.05   *   0.10   *
   ***************************************************
   *     LAMBDA     *    8     *    23    *    36    *
   ***************************************************
   *       L        *    6     *    14    *    34    *
   ***************************************************
   *       F        *    3     *    10    *    12    *
   ***************************************************
   *       T        *    4     *    17    *    30    *
   ***************************************************
   *     TPRIME     *    6     *    24    *    34    *
   ***************************************************
```

```
                    ******************
                    *  TABLE  NO 77  *
                    ******************

             TOTAL NUMBER OF REJECTION OUT OF 100 SAMPLES
             SIMULATED WITH THE GIVEN POPULATION PARAMETERS
             FOR 2 SAMPLES OF SIZE


              N1=  6                                 N2= 20

             MU1= 1.000                             MU2= 2.000

          SIGMA1= 2.000                          SIGMA2= 2.000

       BETA1=SIGMA1/MU1= 2.000              BETA2=SIGMA2/MU2= 1.000

          THETA=MU1/MU2= 0.500              PSI=BETA1/BETA2= 2.000


       ****************************************************
       *               *          ALPHA-LEVEL             *
       * TEST STATISTIC ***********************************
       *               *   0.01   *   0.05   *   0.10     *
       ****************************************************
       *    LAMBDA     *    3     *    11    *    16      *
       ****************************************************
       *      U        *    5     *    9     *    16      *
       ****************************************************
       *      F        *    1     *    5     *    8       *
       ****************************************************
       *      T        *    4     *    15    *    27      *
       ****************************************************
       *    TPRIME     *    5     *    15    *    25      *
       ****************************************************
```

```
                    ******************
                    *  TABLE  NO 78  *
                    ******************

            TOTAL NUMBER OF REJECTION OUT OF 100 SAMPLES
            SIMULATED WITH THE GIVEN POPULATION PARAMETERS
            FOR 2 SAMPLES OF SIZE

             N1= 10                              N2= 20

             MU1= 8.000                        MU2=10.000

          SIGMA1= 2.000                       SIGMA2= 2.500

          BETA1=SIGMA1/MU1= 0.250          BETA2=SIGMA2/MU2= 0.250

           THETA=MU1/MU2= 0.800             PSI=BETA1/BETA2= 1.000

          ************************************************
          *               *          ALPHA-LEVEL         *
          * TEST STATISTIC ********************************
          *               *  0.01  *   0.05  *   0.10    *
          ************************************************
          *    LAMBDA     *   46   *    72   *    84     *
          ************************************************
          *      U        *    0   *     0   *     0     *
          ************************************************
          *      F        *    2   *     7   *    20     *
          ************************************************
          *      T        *   34   *    65   *    76     *
          ************************************************
          *    TPRIME     *   36   *    63   *    78     *
          ************************************************
```

```
                    ******************
                    *  TABLE  NO 79  *
                    ******************

          TOTAL NUMBER OF REJECTION OUT OF 100 SAMPLES
          SIMULATED WITH THE GIVEN POPULATION PARAMETERS
          FOR 2 SAMPLES.OF SIZE

           N1= 10                               N2= 20

          MU1= 2.000                           MU2= 4.000

       SIGMA1= 2.000                        SIGMA2= 4.000

     BETA1=SIGMA1/MU1= 1.000              BETA2=SIGMA2/MU2= 1.000

       THETA=MU1/MU2= 0.500               PSI=BETA1/BETA2= 1.000

     ********************************************
     *              *         ALPHA-LEVEL       *
     * TEST STATISTIC *****************************
     *              *  0.01  *  0.05  *  0.10   *
     ********************************************
     *    LAMBDA    *   63   *   84   *   95    *
     ********************************************
     *      U       *   29   *   68   *   80    *
     ********************************************
     *      F       *   28   *   61   *   75    *
     ********************************************
     *      T       *   10   *   32   *   50    *
     ********************************************
     *    TPRIME    *   17   *   43   *   57    *
     ********************************************
```

```
                   ******************
                   *  TABLE  NO 80  *
                   ******************

          TOTAL NUMBER OF REJECTION OUT OF 100 SAMPLES
          SIMULATED WITH THE GIVEN POPULATION PARAMETERS
          FOR 2 SAMPLES OF SIZE

           N1= 10                                 N2= 20

          MU1= 1.000                             MU2= 1.000

       SIGMA1= 2.000                          SIGMA2= 4.000

     BETA1=SIGMA1/MU1= 2.000              BETA2=SIGMA2/MU2= 4.000

       THETA=MU1/MU2= 1.000              PSI=BETA1/BETA2= 0.500


     ***************************************************
     *              *          ALPHA-LEVEL            *
     * TEST STATISTIC ************************************
     *              *   0.01   *   0.05   *   0.10    *
     ***************************************************
     *    LAMBDA    *    33    *    62    *    76     *
     ***************************************************
     *      U       *    21    *    53    *    66     *
     ***************************************************
     *      F       *    28    *    57    *    76     *
     ***************************************************
     *      T       *     0    *     1    *     6     *
     ***************************************************
     *    TPRIME    *     0    *     4    *    11     *
     ***************************************************
```

```
                  *****************
                  *  TABLE  NO 81  *
                  *****************

            TOTAL NUMBER OF REJECTION OUT OF 100 SAMPLES
            SIMULATED WITH THE GIVEN POPULATION PARAMETERS
            FOR 2 SAMPLES OF SIZE

             N1= 10                             N2= 20

            MU1= 8.000                         MU2=10.000

         SIGMA1= 2.000                      SIGMA2= 2.000

      BETA1=SIGMA1/MU1= 0.250             BETA2=SIGMA2/MU2= 0.200

        THETA=MU1/MU2= 0.800             PSI=BETA1/BETA2= 1.250

      ***************************************************
      *                *          ALPHA-LEVEL           *
      * TEST STATISTIC **********************************
      *                *  0.01  *   0.05  *   0.10   *
      ***************************************************
      *      LAMBDA    *   36   *    69   *    82    *
      ***************************************************
      *        U       *    0   *     0   *     0    *
      ***************************************************
      *        F       *    3   *     8   *     9    *
      ***************************************************
      *        T       *   41   *    72   *    81    *
      ***************************************************
      *      TPRIME    *   28   *    66   *    81    *
      ***************************************************
```

```
                    ******************
                    *  TABLE  NU 82  *
                    ******************

           TOTAL NUMBER OF REJECTION OUT OF 100 SAMPLES
           SIMULATED WITH THE GIVEN POPULATION PARAMETERS
           FOR 2 SAMPLES OF SIZE

            N1= 10                            N2= 20

           MU1= 4.000                        MU2= 6.000

         SIGMA1= 2.000                     SIGMA2= 2.500

        BETA1=SIGMA1/MU1= 0.500         BETA2=SIGMA2/MU2= 0.416

         THETA=MU1/MU2= 0.670          PSI=BETA1/BETA2= 1.200

        **************************************************
        *                *           ALPHA-LEVEL         *
        * TEST STATISTIC ********************************
        *                *   0.01  *   0.05  *   0.10    *
        **************************************************
        *     LAMBDA     *    43   *    67   *    80     *
        **************************************************
        *       U        *     0   *    12   *    24     *
        **************************************************
        *       F        *     4   *    14   *    20     *
        **************************************************
        *       T        *    27   *    63   *    74     *
        **************************************************
        *     TPRIME     *    27   *    64   *    74     *
        **************************************************
```

```
                    ******************
                    *  TABLE  NO 83  *
                    ******************

         TOTAL NUMBER OF REJECTION OUT OF 100 SAMPLES
         SIMULATED WITH THE GIVEN POPULATION PARAMETERS
         FOR 2 SAMPLES OF SIZE

          N1= 10                                N2= 20

         MU1= 1.000                            MU2= 3.000

      SIGMA1= 2.000                         SIGMA2= 4.000

   BETA1=SIGMA1/MU1= 2.000             BETA2=SIGMA2/MU2= 1.333

     THETA=MU1/MU2= 0.333              PSI=BETA1/BETA2= 1.500


   **************************************************
   *               *          ALPHA-LEVEL           *
   * TEST STATISTIC **********************************
   *               *   0.01   *   0.05   *   0.10   *
   **************************************************
   *     LAMBDA    *    47    *    77    *    89    *
   **************************************************
   *       U       *    44    *    73    *    89    *
   **************************************************
   *       F       *    24    *    48    *    66    *
   **************************************************
   *       T       *     6    *    31    *    51    *
   **************************************************
   *     TPRIME    *    11    *    44    *    61    *
   **************************************************
```

```
                    ******************
                    *  TABLE  NO 84  *
                    ******************

            TOTAL NUMBER OF REJECTION OUT OF 100 SAMPLES
            SIMULATED WITH THE GIVEN POPULATION PARAMETERS
            FOR 2 SAMPLES OF SIZE

              N1= 10                          N2= 20

             MU1= 1.000                      MU2= 2.000

          SIGMA1= 3.000                   SIGMA2= 6.000

        BETA1=SIGMA1/MU1= 3.000        BETA2=SIGMA2/MU2= 3.000

          THETA=MU1/MU2= 2.000          PSI=BETA1/BETA2= 1.000

        ***************************************************
        *               *           ALPHA-LEVEL           *
        * TEST STATISTIC ***********************************
        *               *   0.01   *   0.05   *   0.10    *
        ***************************************************
        *     LAMBDA    *    40    *    63    *    82     *
        ***************************************************
        *       U       *    34    *    63    *    76     *
        ***************************************************
        *       F       *    29    *    56    *    75     *
        ***************************************************
        *       T       *     2    *     8    *    10     *
        ***************************************************
        *     TPRIME    *     5    *     9    *    10     *
        ***************************************************
```

```
                    ******************
                    *  TABLE  NO 85  *
                    ******************

          TOTAL NUMBER OF REJECTION OUT OF 100 SAMPLES
          SIMULATED WITH THE GIVEN POPULATION PARAMETERS
          FOR 2 SAMPLES OF SIZE

          N1= 10                              N2= 20

          MU1= 0.800                        MU2= 0.600

       SIGMA1= 4.000                     SIGMA2= 3.000

      BETA1=SIGMA1/MU1= 5.000          BETA2=SIGMA2/MU2= 5.000

       THETA=MU1/MU2= 1.333           PSI=BETA1/BETA2= 1.000


      ****************************************************
      *               *          ALPHA-LEVEL             *
      * TEST STATISTIC ***********************************
      *               *  0.01   *   0.05   *   0.10     *
      ****************************************************
      *     LAMBDA    *    7    *    20    *    35      *
      ****************************************************
      *       U       *    6    *    20    *    34      *
      ****************************************************
      *       F       *    3    *    20    *    34      *
      ****************************************************
      *       T       *    2    *     4    *    12      *
      ****************************************************
      *     TPRIME    *    0    *     2    *     4      *
      ****************************************************
```

```
                    ******************
                    *  TABLE   NO 86  *
                    ******************

        TOTAL NUMBER OF REJECTION OUT OF 100 SAMPLES
        SIMULATED WITH THE GIVEN POPULATION PARAMETERS
        FOR 2 SAMPLES OF SIZE

          N1= 10                              N2= 20

         MU1= 1.000                          MU2= 2.000

      SIGMA1= 0.100                       SIGMA2= 0.200

    BETA1=SIGMA1/MU1= 0.100           BETA2=SIGMA2/MU2= 0.100

      THETA=MU1/MU2= 0.500              PSI=BETA1/BETA2= 1.000

    ***************************************************
    *                *           ALPHA-LEVEL          *
    *  TEST STATISTIC **********************************
    *                *   0.01  *   0.05  *   0.10    *
    ***************************************************
    *     LAMBDA     *   100   *   100   *   100     *
    ***************************************************
    *       U        *     0   *    98   *   100     *
    ***************************************************
    *       F        *    25   *    67   *    76     *
    ***************************************************
    *       T        *   100   *   100   *   100     *
    ***************************************************
    *     TPRIME     *   100   *   100   *   100     *
    ***************************************************
```

```
                    *****************
                    *  TABLE  NO 87  *
                    *****************

          TOTAL NUMBER OF REJECTION OUT OF 100 SAMPLES
          SIMULATED WITH THE GIVEN POPULATION PARAMETERS
          FOR 2 SAMPLES OF SIZE

           N1= 10                                  N2= 20

          MU1= 1.000                              MU2= 2.000

       SIGMA1= 0.500                           SIGMA2= 1.200

     BETA1=SIGMA1/MU1= 0.500               BETA2=SIGMA2/MU2= 0.600

       THETA=MU1/MU2= 0.500                 PSI=BETA1/BETA2= 0.833

     ***************************************************
     *                *           ALPHA-LEVEL          *
     * TEST STATISTIC **********************************
     *                *  0.01    *  0.05    *  0.10    *
     ***************************************************
     *     LAMBDA     *   94     *  100     *  100     *
     ***************************************************
     *       U        *   30     *   76     *   92     *
     ***************************************************
     *       F        *   48     *   76     *   86     *
     ***************************************************
     *       T        *   41     *   77     *   89     *
     ***************************************************
     *     TPRIME     *   63     *   91     *   93     *
     ***************************************************
```

```
                    ******************
                    *  TABLE  NO 88  *
                    ******************

            TOTAL NUMBER OF REJECTION OUT OF 100 SAMPLES
            SIMULATED WITH THE GIVEN POPULATION PARAMETERS
            FOR 2 SAMPLES OF SIZE

             N1= 10                                N2= 20

            MU1= 1.000                            MU2= 2.000

         SIGMA1= 1.000                         SIGMA2= 4.000

   BETA1=SIGMA1/MU1= 1.000             BETA2=SIGMA2/MU2= 2.000

     THETA=MU1/MU2= 0.500              PSI=BETA1/BETA2= 0.500

   ***************************************************
   *                *         ALPHA-LEVEL            *
   * TEST STATISTIC **********************************
   *                *  0.01   *  0.05   *  0.10     *
   ***************************************************
   *    LAMBDA      *   99    *  100    *  100      *
   ***************************************************
   *      U         *   92    *   97    *   99      *
   ***************************************************
   *      F         *   99    *  100    *  100      *
   ***************************************************
   *      T         *    1    *    7    *    8      *
   ***************************************************
   *    TPRIME      *    5    *   13    *   24      *
   ***************************************************
```

```
                 ******************
                 *  TABLE  NO 89  *
                 ******************

        TOTAL NUMBER OF REJECTION OUT OF 100 SAMPLES
        SIMULATED WITH THE GIVEN POPULATION PARAMETERS
        FOR 2 SAMPLES OF SIZE

         N1= 10                              N2= 20

        MU1= 1.000                          MU2= 2.000

     SIGMA1= 1.500                       SIGMA2= 2.000

  BETA1=SIGMA1/MU1= 1.500          BETA2=SIGMA2/MU2= 1.000

     THETA=MU1/MU2= 0.500          PSI=BETA1/BETA2= 1.500


  ***************************************************
  *                *         ALPHA-LEVEL            *
  * TEST STATISTIC **********************************
  *                *  0.01  *   0.05   *   0.10     *
  ***************************************************
  *     LAMBDA     *   6    *   34     *    50      *
  ***************************************************
  *       U        *   7    *   20     *    34      *
  ***************************************************
  *       F        *   3    *   10     *    22      *
  ***************************************************
  *       T        *   7    *   20     *    29      *
  ***************************************************
  *     TPRIME     *   8    *   21     *    29      *
  ***************************************************
```

```
                 ******************
                 *  TABLE  NO 90  *
                 ******************

        TOTAL NUMBER OF REJECTION OUT OF 100 SAMPLES
        SIMULATED WITH THE GIVEN POPULATION PARAMETERS
        FOR 2 SAMPLES OF SIZE

        N1= 10                              N2= 20

        MU1= 1.000                          MU2= 2.000

     SIGMA1= 2.000                       SIGMA2= 2.000

   BETA1=SIGMA1/MU1= 2.000           BETA2=SIGMA2/MU2= 1.000

     THETA=MU1/MU2= 0.500            PSI=BETA1/BETA2= 2.000

   ***************************************************
   *                *          ALPHA-LEVEL           *
   * TEST STATISTIC **********************************
   *                *   0.01   *   0.05   *   0.10   *
   ***************************************************
   *     LAMBDA     *    1     *    7     *    16    *
   ***************************************************
   *       U        *    1     *    12    *    17    *
   ***************************************************
   *       F        *    1     *    5     *    7     *
   ***************************************************
   *       T        *    7     *    20    *    26    *
   ***************************************************
   *     TPRIME     *    7     *    14    *    22    *
   ***************************************************
```

77764

A CONSULTER
SUR PLACE

ÉCOLE POLYTECHNIQUE DE MONTRÉAL
3 9334 00288783 2