**APPENDIX E**

**The reliability coefficient for the Algebraic Concepts Performance Test Scores**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| NO | Pretest (X) | Posttest (Y) | X2 | Y2 | XY |
| 1 | 46 | 45 | 2116 | 2025 | 2070 |
| 2 | 43 | 44 | 1849 | 1936 | 1892 |
| 3 | 60 | 62 | 3600 | 3844 | 3720 |
| 4 | 40 | 39 | 1600 | 1521 | 1560 |
| 5 | 20 | 22 | 400 | 484 | 440 |
| 6 | 33 | 31 | 1089 | 961 | 1023 |
| 7 | 20 | 22 | 400 | 484 | 440 |
| 8 | 20 | 20 | 400 | 400 | 400 |
| 9 | 40 | 40 | 1600 | 1600 | 1600 |
| 10 | 40 | 40 | 1600 | 1600 | 1600 |
| 11 | 30 | 30 | 900 | 900 | 900 |
| 12 | 30 | 30 | 900 | 900 | 900 |
| 13 | 23 | 24 | 529 | 576 | 552 |
| 14 | 33 | 33 | 1089 | 1089 | 1089 |
| 15 | 33 | 34 | 1089 | 1156 | 1122 |
| 16 | 20 | 21 | 400 | 441 | 420 |
| 17 | 26 | 28 | 676 | 784 | 728 |
| 18 | 20 | 20 | 400 | 400 | 400 |
| 19 | 20 | 20 | 400 | 400 | 400 |
| 20 | 20 | 20 | 400 | 400 | 400 |
| 21 | 33 | 35 | 1089 | 1225 | 1155 |
| 22 | 26 | 25 | 676 | 625 | 650 |
| 23 | 26 | 25 | 676 | 625 | 650 |
| 24 | 18 | 20 | 324 | 400 | 360 |
| 25 | 13 | 13 | 169 | 169 | 169 |
| 26 | 43 | 43 | 1849 | 1849 | 1849 |
| 27 | 63 | 64 | 3969 | 4096 | 4032 |
| 28 | 16 | 17 | 256 | 289 | 272 |
| 29 | 23 | 24 | 529 | 576 | 552 |
| 30 | 40 | 42 | 1600 | 1764 | 1680 |
| N=30 | ∑X=917 | ∑Y=933 | ∑X2=32574 | ∑Y2=33519 | ∑XY =32205 |

The Pearson Product-Moment Correlation Coefficient (PPMC) statistics for ACPT is:

= 0.82

**APPENDIX F**

**The coefficient of reliability of the Algebra Concepts Attitude Questionnaire Test Scores**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **NO** | **Scores of even items (X)** | **Scores of odd items (Y)** | **X2** | **Y2** | **XY** |
| 1 | 29 | 22 | 841 | 484 | 638 |
| 2 | 28 | 40 | 784 | 1600 | 1120 |
| 3 | 38 | 36 | 1444 | 1296 | 1368 |
| 4 | 27 | 23 | 729 | 529 | 621 |
| 5 | 29 | 20 | 841 | 400 | 580 |
| 6 | 33 | 33 | 1089 | 1089 | 1089 |
| 7 | 40 | 36 | 1600 | 1296 | 1440 |
| 8 | 35 | 37 | 1225 | 1369 | 1295 |
| 9 | 46 | 46 | 2116 | 2116 | 2116 |
| 10 | 46 | 45 | 2116 | 2025 | 2070 |
| 11 | 32 | 33 | 1024 | 1089 | 1056 |
| 12 | 31 | 34 | 961 | 1156 | 1054 |
| 13 | 38 | 35 | 1444 | 1225 | 1330 |
| 14 | 29 | 35 | 841 | 1225 | 1015 |
| 15 | 42 | 37 | 1764 | 1369 | 1554 |
| 16 | 41 | 37 | 1681 | 1369 | 1517 |
| 17 | 40 | 43 | 1600 | 1849 | 1720 |
| 18 | 32 | 30 | 1024 | 900 | 960 |
| 19 | 47 | 45 | 2209 | 2025 | 2115 |
| 20 | 39 | 34 | 1521 | 1156 | 1326 |
| 21 | 35 | 38 | 1225 | 1444 | 1330 |
| 22 | 40 | 37 | 1600 | 1369 | 1480 |
| 23 | 28 | 33 | 784 | 1084 | 924 |
| 24 | 41 | 39 | 1681 | 1521 | 1599 |
| 25 | 41 | 48 | 1681 | 2401 | 1968 |
| 26 | 33 | 29 | 1089 | 841 | 957 |
| 27 | 28 | 26 | 784 | 676 | 728 |
| 28 | 42 | 29 | 1064 | 841 | 1218 |
| 29 | 29 | 20 | 841 | 400 | 580 |
| 30 | 27 | 25 | 729 | 625 | 783 |
| **N=30** | **∑X=1066** | **∑Y=1025** | **∑X2=39052** | **∑Y2=37863** | **∑XY =37551** |

The reliability coefficient of ACAQ is computed using the formula:

[Spearman− Brown formula], where is the reliability of the internal consistency of the even and odd items of ACAQ using PPMC statistical technique. From the table, = 0.6184

Thus, = = 0.764 ≈ 0.76 correct to 2 d.p.

**APPENDIX G**

**Items Analysis for ACPT**

|  |  |  |  |
| --- | --- | --- | --- |
| **Item No** | **No. Of correct responses** | **Facility Index**  **FI = × 100** | **Discrimination Index**  **DI =** |
| 1 | 20 | 67 | 0.63 |
| 2 | 12 | 40 | 0.38 |
| 3 | 2 | 43 | 0.5 |
| 4 | 22 | 73 | 0.63 |
| 5 | 19 | 63 | 0.38 |
| 6 | 11 | 46 | 0.38 |
| 7 | 8 | 26 | 0.5 |
| 8 | 7 | 23 | 0.38 |
| 9 | 16 | 53 | 0.5 |
| 10 | 8 | 26 | 0.5 |
| 11 | 15 | 50 | 0.5 |
| 12 | 20 | 67 | 0.5 |
| 13 | 12 | 40 | 0.63 |
| 14 | 7 | 23 | 0.38 |
| 15 | 6 | 20 | 0.25\* |
| 16 | 8 | 26 | 0.5 |
| 17 | 10 | 33 | 0.38 |
| 18 | 16 | 53 | 0.63 |
| 19 | 8 | 26 | 0.38 |
| 20 | 7 | 23 | 0.25\* |
| 21 | 12 | 40 | 0.5 |
| 22 | 11 | 37 | 0.38 |
| 23 | 16 | 53 | 0.63 |
| 24 | 10 | 33 | 0.38 |
| 25 | 17 | 56 | 0.5 |
| 26 | 14 | 46 | 0.5 |
| 27 | 10 | 33 | 0.38 |
| 28 | 7 | 23 | 0.63 |
| 29 | 7 | 23 | 0.63 |
| 30 | 12 | 40 | 0.5 |
| 31 | 10 | 33 | 0.38 |
| 32 | 22 | 73 | 0.5 |
| 33 | 8 | 26 | 0.63 |
| 34 | 15 | 50 | 0.38 |
| 35 | 16 | 53 | 0.38 |
| 36 | 13 | 43 | 0.63 |
| 37 | 15 | 50 | 0.5 |
| 38 | 17 | 56 | 0.38 |
| 39 | 7 | 23 | 0.5 |
| 40 | 9 | 30 | 0.38 |

Key:

\* Items that were reconstructed

**APPENDIX H**

**Distractor Index (DE) for ACPT**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Item No | BU | BL | Diff=BU−BL | DE |
| 1 | 0 | 6 | −6 | −40% |
| 2 | 1 | 6 | −5 | −33% |
| 3 | 3 | 7 | −4 | −27% |
| 4 | 1 | 7 | −6 | −40% |
| 5 | 1 | 7 | −6 | −40% |
| 6 | 2 | 7 | −5 | −33% |
| 7 | 1 | 6 | −5 | −33% |
| 8 | 4 | 7 | −3 | −20% |
| 9 | 2 | 8 | −6 | −40% |
| 10 | 2 | 7 | −7 | −47% |
| 11 | 0 | 7 | −4 | −27% |
| 12 | 3 | 4 | −3 | −20% |
| 13 | 1 | 5 | −5 | −33% |
| 14 | 4 | 7 | −3 | −20% |
| 15 | 2 | 5 | −3 | −20% |
| 16 | 1 | 5 | −4 | −27% |
| 17 | 4 | 7 | −3 | −20% |
| 18 | 3 | 6 | −3 | −20% |
| 19 | 1 | 5 | −4 | −27% |
| 20 | 2 | 5 | −3 | −20% |
| 21 | 5 | 8 | −3 | −20% |
| 22 | 3 | 7 | −4 | −27% |
| 23 | 5 | 8 | −3 | −20% |
| 24 | 1 | 4 | −3 | −20% |
| 25 | 2 | 7 | −5 | −33% |
| 26 | 1 | 5 | −4 | −27% |
| 27 | 2 | 8 | −6 | −40% |
| 28 | 3 | 7 | −4 | −27% |
| 29 | 7 | 7 | 0 | 0 |
| 30 | 3 | 6 | −3 | −20% |
| 31 | 3 | 7 | −4 | −27% |
| 32 | 3 | 8 | −5 | −33% |
| 33 | 3 | 8 | −5 | −33% |
| 34 | 2 | 6 | −4 | −27% |
| 35 | 1 | 8 | −7 | −47% |
| 36 | 1 | 7 | −6 | −40% |
| 37 | 2 | 5 | −3 | −20% |
| 38 | 2 | 7 | −5 | −33% |
| 39 | 1 | 6 | −5 | −33% |
| 40 | 2 | 8 | −6 | −40% |