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ภาคผนวก

ภาคผนวก ก.

วิธีคำนวณเพื่อวิเคราะห์ข้อมูล

สัมประสิทธิ์ความเชื่อถือได้ของแบบทดสอบโคลซที่ใช้วัดความเข้าใจการอ่านภาษาอังกฤษ

$$r_{tt} = \frac{n\sigma_t^2 - M_t(n - M_t)}{(n-1)\sigma_t^2}$$

$$= \frac{104(177.265) - 35.386(104 - 35.386)}{(104 - 1)177.265}$$

$$= \frac{18435.56 - 35.386(68.614)}{103(177.265)}$$

$$= \frac{18435.56 - 2427.975}{18258.295}$$

$$= \frac{16007.585}{18258.295}$$

$$= .8767$$

สัมประสิทธิ์ความเชื่อถือได้ของแบบทดสอบเลือกตอบที่ใช้วัดความเข้าใจการอ่านภาษาอังกฤษ

$$r_{tt} = \frac{n\sigma_t^2 - M_t\,(n - M_t)}{(n-1)\,\sigma_t^2}$$

$$= \frac{60(145.726) - 36.60(60 - 36.60)}{(60 - 1)145.726}$$

$$= \frac{8743.56 - 36.60(23.40)}{59(145.726)}$$

$$= \frac{8743.56 - 856.44}{8597.834}$$

$$= \frac{7887.12}{8597.834}$$

$$= .9173$$

สัมประสิทธิ์สหสัมพันธ์ระหว่างคะแนนวัดความเข้าใจการอ่านภาษาอังกฤษด้วยแบบทดสอบโคลซตอนที่ 1 กับคะแนนวัดความเข้าใจการอ่านภาษาอังกฤษด้วยแบบทดสอบเลือกตอบตอนที่ 1 ของกลุ่มตัวอย่างโรงเรียนสิงหราชพิทยาคม

$$r_{XY} = \frac{N\Sigma XY - \Sigma X \Sigma Y}{\sqrt{[N\Sigma X^2 - (\Sigma X)^2]\ [N\Sigma Y^2 - (\Sigma Y)^2]}}$$

$$= \frac{70(159733.55) - (4345)\ (2476.45)}{\sqrt{[70(293425)-(4345)^2]\ [70(96986.91)-(2476.45)^2]}}$$

$$= \frac{11181348.5 - 10760175.25}{\sqrt{(20539750 - 18879025)\ (6789083.7 - 6132804.6)}}$$

$$= \frac{421173.25}{\sqrt{(1660725)\ (656279.10)}}$$

$$= \frac{421173.25}{\sqrt{1089899108347.50}}$$

$$= \frac{421173.25}{1043982.33}$$

$$= .4034 \quad \text{มีนัยสำคัญที่ระดับ } .01$$

r_{XY} ที่คำนวณได้ $.403 > .308$ ที่ระดับความมีนัยสำคัญ .01

สัมประสิทธิ์สหสัมพันธ์ระหว่างคะแนนวัดความเข้าใจการอ่านภาษาอังกฤษด้วยแบบทดสอบโคลซตอนที่ 2 กับคะแนนวัดความเข้าใจการอ่านภาษาอังกฤษด้วยแบบทดสอบเลือกตอบตอนที่ 2 ของกลุ่มตัวอย่างโรงเรียนสิงหราชพิทยาคม

$$r_{XY} = \frac{N\Sigma XY - \Sigma X \Sigma Y}{\sqrt{[N\Sigma X^2 - (\Sigma X)^2][N\Sigma Y^2 - (\Sigma Y)^2]}}$$

$$= \frac{70(177985.8) - (4560)(2484.2)}{\sqrt{[70(337800) - (4560)^2][70(104209.79) - (2484.2)^2]}}$$

$$= \frac{12459006 - 11327952}{\sqrt{(23646000 - 20793600)(7294685.3 - 6171249.64)}}$$

$$= \frac{1131054}{\sqrt{(2852400)(1123435.66)}}$$

$$= \frac{1131054}{\sqrt{3204487876584}}$$

$$= \frac{1131054}{1790108.34}$$

$$= .6318$$ มีนัยสำคัญที่ระดับ .01

r_{XY} ที่คำนวณได้ .632 > .308 ที่ระดับความมีนัยสำคัญ .01

สัมประสิทธิ์สหสัมพันธ์ระหว่างคะแนนวัดความเข้าใจการอ่านภาษาอังกฤษด้วยแบบทดสอบโคลซตอนที่ 3 กับคะแนนวัดความเข้าใจการอ่านภาษาอังกฤษด้วยแบบทดสอบเลือกตอบตอนที่ 3 ของกลุ่มตัวอย่างโรงเรียนสังหราชพิทยาคม

$$r_{XY} = \frac{N\Sigma XY - \Sigma X \Sigma Y}{\sqrt{[N\Sigma X^2 - (\Sigma X)^2][N\Sigma Y^2 - (\Sigma Y)^2]}}$$

$$= \frac{70(135839.65) - (3905)(2159.57)}{\sqrt{[70(271475) - (3905)^2][70(81604.95) - (2159.57)^2]}}$$

$$= \frac{9508775.5 - 8433120.85}{\sqrt{(19003250 - 15249025)(5712346.5 - 4663742.58)}}$$

$$= \frac{1075654.65}{\sqrt{(3754225)(1048603.92)}}$$

$$= \frac{1075654.65}{\sqrt{3936695051562}}$$

$$= \frac{1075654.65}{1984110.64}$$

$= .5421$ มีนัยสำคัญที่ระดับ .01

r_{XY} ที่คำนวณได้ $.542 > .308$ ที่ระดับความมีนัยสำคัญ .01

สัมประสิทธิ์สหสัมพันธ์ระหว่างคะแนนวัดความเข้าใจการอ่านภาษาอังกฤษด้วยแบบทดสอบโคลซตอนที่ 1 กับคะแนนวัดความเข้าใจการอ่านภาษาอังกฤษด้วยแบบทดสอบเลือกตอบตอนที่ 1 ของกลุ่มตัวอย่างโรงเรียนอินทรศึกษา

$$r_{XY} = \frac{N\Sigma XY - \Sigma X \Sigma Y}{\sqrt{[N\Sigma X^2 - (\Sigma X)^2][N\Sigma Y^2 - (\Sigma Y)^2]}}$$

$$= \frac{60(159411.5) - (3760)(2485.29)}{\sqrt{[60(249750)-(3760)^2][60(111098.33)-(2485.29)^2]}}$$

$$= \frac{9564690 - 9344690.4}{\sqrt{(14985000 - 14137600)(6665899.8 - 6176666.38)}}$$

$$= \frac{219999.6}{\sqrt{(847400)(489233.42)}}$$

$$= \frac{219999.6}{\sqrt{414576400108}}$$

$$= \frac{219999.6}{643876.075}$$

$= .3417$ มีนัยสำคัญที่ระดับ .01

r_{XY} ที่คำนวณได้ $.342 > .333$ ที่ระดับความมีนัยสำคัญ .01

สัมประสิทธิ์สหสัมพันธ์ระหว่างคะแนนวัดความเข้าใจการอ่านภาษาอังกฤษด้วยแบบทดสอบโคลซตอนที่ 2 กับคะแนนวัดความเข้าใจการอ่านภาษาอังกฤษด้วยแบบทดสอบเลือกตอบตอนที่ 2 ของกลุ่มตัวอย่างโรงเรียนอินทรศึกษา

$$r_{XY} = \frac{N\Sigma XY - \Sigma X \Sigma Y}{\sqrt{[N\Sigma X^2 - (\Sigma X)^2][N\Sigma Y^2 - (\Sigma Y)^2]}}$$

$$= \frac{60(185922) - (4345)(2376.33)}{\sqrt{[60(336375)-(4345)^2][60(111335.65)-(2376.33)^2]}}$$

$$= \frac{11155320 - 10325153.85}{\sqrt{(20182500 - 18879025)(6680139 - 5646944.27)}}$$

$$= \frac{830166.15}{\sqrt{(1303475)(1033194.73)}}$$

$$= \frac{830166.15}{\sqrt{1346743500686.75}}$$

$$= \frac{830166.15}{1160492.78}$$

$$= .7154$$ มีนัยสำคัญที่ระดับ .01

r_{XY} ที่คำนวณได้ $.715 > .333$ ที่ระดับความมีนัยสำคัญ .01

สัมประสิทธิ์สหสัมพันธ์ระหว่างคะแนนวัดความเข้าใจการอ่านภาษาอังกฤษด้วยแบบทดสอบโคลซตอนที่ 3 กับคะแนนวัดความเข้าใจการอ่านภาษาอังกฤษด้วยแบบทดสอบเลือกตอบตอนที่ 3 ของกลุ่มตัวอย่างโรงเรียนอินทรศึกษา

$$r_{XY} = \frac{N\Sigma XY - \Sigma X \Sigma Y}{\sqrt{[N\Sigma X^2 - (\Sigma X)^2][N\Sigma Y^2 - (\Sigma Y)^2]}}$$

$$= \frac{60(164743.1) - (3875)(2318.9)}{\sqrt{[60(280725)-(3875)^2][60(104951.59)-(2318.9)^2]}}$$

$$= \frac{9884586 - 8985737.5}{\sqrt{(16843500 - 15015625)(6297095.4 - 5377297.21)}}$$

$$= \frac{898848.5}{\sqrt{(1827875)(919798.2)}}$$

$$= \frac{898848.5}{\sqrt{1681276134825}}$$

$$= \frac{898848.5}{1296640.325}$$

$$= .6932 \text{ มีนัยสำคัญที่ระดับ } .01$$

r_{XY} ที่คำนวณได้ $.693 > .333$ ที่ระดับความมีนัยสำคัญ .01

การหาค่าเฉลี่ยสัมประสิทธิ์สหสัมพันธ์โดยใช้ Fisher's Z function

1) การหาค่าเฉลี่ยสัมประสิทธิ์สหสัมพันธ์ของข้อความในแบบทดสอบตอนที่ 1 ของกลุ่มตัวอย่างทั้งสองกลุ่ม

r	Z	N	N-3	Z(N-3)
.40	.42	70	67	28.14
.34	.35	60	57	19.95
		130	124	48.09

$\bar{X}_Z = \frac{48.09}{124} = .39 = r = .37$

2) การหาค่าเฉลี่ยสัมประสิทธิ์สหสัมพันธ์ของข้อความตอนที่ 2 ของกลุ่มตัวอย่างทั้งสองกลุ่ม

r	Z	N	N-3	Z(N-3)
.63	.74	70	67	49.58
.72	.91	60	57	51.87
		130	124	101.45

$\bar{X}_Z = \frac{101.45}{124} = .82 = r = .68$

3) การหาค่าเฉลี่ยสัมประสิทธิ์สหสัมพันธ์ของข้อความตอนที่ 3 ของกลุ่มตัวอย่างทั้งสองกลุ่ม

r	Z	N	N-3	Z(N-3)
.54	.60	70	67	40.20
.69	.85	60	57	48.45
		130	124	88.65

$\bar{X}_Z = \frac{88.65}{124} = .72 = r = .62$

การทดสอบความมีนัยสำคัญของความแตกต่างระหว่างค่าสหสัมพันธ์ที่ได้จากกลุ่มตัวอย่างโรงเรียนสิงหราชพิทยาคม กับกลุ่มตัวอย่างโรงเรียนอินทรศึกษา

แปลงค่า r เป็น Z (Fisher's Z function)

$r_1 = .53 = Z_1 = .59$

$r_2 = .61 = Z_2 = .71$

Ho : $Z_1 = Z_2$

ทดสอบความคลาดเคลื่อนมาตรฐานของความแตกต่างระหว่าง Z_1 และ Z_2

$$\sigma_{Z_1 - Z_2} = \sqrt{\frac{1}{N_1 - 3} + \frac{1}{N_2 - 3}}$$

$$= \sqrt{\frac{1}{70 - 3} + \frac{1}{60 - 3}}$$

$$= \sqrt{.015 + .017} = \sqrt{.032} = .178$$

$$C.R.Z = \frac{Z_2 - Z_1}{\sigma_{Z_1 - Z_2}}$$

$$= \frac{.71 - .59}{.178} = .674$$

ที่ระดับความมีนัยสำคัญ .05 Z มีค่า 1.96 Z ที่คำนวณได้ .67 $<$ 1.96

∴ ความแตกต่างระหว่างค่าสหสัมพันธ์ที่ได้จากกลุ่มตัวอย่างทั้งสองกลุ่มไม่มีนัยสำคัญ

การคำนวณมัชฌิมเลขคณิตรวม ($\bar{X}_{comb}$) ของคะแนนของกลุ่มตัวอย่างทั้งสองกลุ่ม (คะแนนในตารางที่ 7)

1) $\bar{X}_{comb}$ ที่คำนวณจาก $\bar{X}$ ที่ได้จากคะแนนดิบของแบบทดสอบเลือกตอบ

$$\bar{X}_{comb} = \frac{N_1\bar{X}_1 + N_2\bar{X}_2 + N_3\bar{X}_3 + N_4\bar{X}_4}{N_1 + N_2 + N_3 + N_4}$$

$$= \frac{(32x36.28) + (37x39.65) + (38x36.87) + (23x39.43)}{130}$$

$$= 37.97$$

2) $\bar{X}_{comb}$ ที่คำนวณจาก $\bar{X}$ ที่ได้จากคะแนนที่คิดเป็นร้อยละของแบบทดลองเลือกตอบ

$$\bar{X}_{comb} = \frac{N_1\bar{X}_1 + N_2\bar{X}_2 + N_3\bar{X}_3 + N_4\bar{X}_4}{N_1 + N_2 + N_3 + N_4}$$

$$= \frac{(32x60.45) + (37x66.10) + (38x61.45) + (23x65.72)}{130}$$

$$= 63.28$$

3) $\bar{X}_{comb}$ ที่คำนวณจาก $\bar{X}$ ที่ได้จากคะแนนดิบของแบบทดสอบโคลซ

$$\bar{X}_{comb} = \frac{N_1\bar{X}_1 + N_2\bar{X}_2 + N_3\bar{X}_3 + N_4\bar{X}_4}{N_1 + N_2 + N_3 + N_4}$$

$$= \frac{(32x37.31) + (37x40.97) + (38x33.66) + (23x41.96)}{130}$$

$$= 38.11$$

4) $\bar{X}_{comb}$ ที่คำนวณจาก $\bar{X}$ ที่ได้จากคะแนนที่คิดเป็นร้อยละของแบบทดสอบโคลซ

$$\bar{X}_{comb} = \frac{N_1\bar{X}_1 + N_2\bar{X}_2 + N_3\bar{X}_3 + N_4\bar{X}_4}{N_1 + N_2 + N_3 + N_4}$$

$$= \frac{(32x35.88) + (37x39.39) + (38x32.37) + (12x40.35)}{130}$$

$$= 36.64$$

การคำนวณส่วนเบี่ยงเบนมาตรฐานรวม (σ_{comb}) ของคะแนนของกลุ่มตัวอย่างทั้งสองกลุ่ม

(คะแนนในตารางที่ 7)

1) σ_{comb} ที่คำนวณจากส่วนเบี่ยงเบนมาตรฐานของคะแนนจากแบบทดสอบเลือกตอบ

$$\sigma_{comb} = \frac{N_1(\sigma_1^2 + d_1^2) + N_2(\sigma_2^2 + d_2^2) + N_3(\sigma_3^2 + d_3^2) + N_4(\sigma_4^2 + d_4^2)}{N_1 + N_2 + N_3 + N_4}$$

$$= \sqrt{\frac{32\left[(12.39)^2 + (-2.83)^2\right] + 37\left[(9.79)^2 + (2.82)^2\right] + 38\left[(12.12)^2 + (-1.83)^2\right] + 23\left[(10.16)^2 + (2.44)^2\right]}{130}}$$

$$= \sqrt{\frac{5168.64 + 3840.23 + 5709.12 + 2511.14}{130}}$$

$$= \sqrt{\frac{17229.13}{130}} \qquad = \sqrt{132.53} \qquad = 11.51$$

2) σ_{comb} ที่คำนวณจากส่วนเบี่ยงเบนมาตรฐานของคะแนนจากแบบทดสอบโคลซ

$$\sigma_{comb} = \sqrt{\frac{N_1(\sigma_1^2 + d_1^2) + N_2(\sigma_2^2 + d_2^2) + N_3(\sigma_3^2 + d_3^2) + N_4(\sigma_4^2 + d_4^2)}{N_1 + N_2 + N_3 + N_4}}$$

$$= \sqrt{\frac{32[(15.14)^2+(-.76)^2] + 37[(15.35)^2+(2.75)^2] + 38[(11.87)^2+(-4.27)^2] + 23[(11.17)^2+(4.71)^2]}{130}}$$

$$= \sqrt{\frac{25777.45}{130}} \qquad = \sqrt{198.29} \qquad = 14.08$$

สมการถดถอยของคะแนนจากแบบทดสอบโคลซ (Y) เมื่อเทียบกับคะแนนสมบูรณ์จากแบบทดสอบเลือกตอบ (X)

$$\hat{Y} = r_{XY} \frac{\sigma_Y}{\sigma_X} (X - \bar{X}) + \bar{Y}$$

$$= .57 \left(\frac{14.08}{11.51} \right) (X - 63.28) + 36.64$$

$$= .57 \ (1.22) \ (X - 63.28) + 36.64$$

$$= .70 \ X - 44.30 + 36.64$$

$$= .70 \ X - 7.66$$

ค่า $X = 50 \ \hat{Y} = .70(50) - 7.66 = 27.30 \approx 27$

$X = 55 \ \hat{Y} = .70(55) - 7.66 = 30.84 \approx 31$

$X = 60 \ \hat{Y} = .70(60) - 7.66 = 34.34 \approx 34$

$X = 65 \ \hat{Y} = .70(65) - 7.66 = 37.84 \approx 38$

$X = 70 \ \hat{Y} = .70(70) - 7.66 = 41.34 \approx 41$

$X = 75 \ \hat{Y} = .70(75) - 7.66 = 44.84 \approx 45$

$X = 80 \ \hat{Y} = .70(80) - 7.66 = 48.34 \approx 48$

$X = 85 \ \hat{Y} = .70(85) - 7.66 = 51.84 \approx 52$

$X = 90 \ \hat{Y} = .70(90) - 7.66 = 55.34 \approx 55$

$X = 95 \ \hat{Y} = .70(95) - 7.66 = 58.84 \approx 59$

$X = 100 \ \hat{Y} = .70(100) - 7.66 = 62.34 \approx 62$

ความคลาดเคลื่อนมาตรฐานในการทำนายคะแนนจากแบบทดสอบโคลซ (Y) เมื่อเทียบกับคะแนนสมมุติจากแบบทดสอบเลือกตอบ (X)

$$\sigma_{YX} = \sigma_{Y} \sqrt{1 - r^2_{XY}}$$

$$= 14.08 \sqrt{1 - (.57)^2}$$

$$= 14.08 \times .82$$

$$= 11.54$$

การเปรียบเทียบความสามารถในการทำแบบทดสอบเลือกตอบระหว่างนักเรียนชาย กับนักเรียนหญิงโรงเรียนสิงหราชพิทยาคม

1. ทดสอบภาวะความแปรปรวนของกลุ่มตัวอย่าง

$$Ho : \sigma_1^2 = \sigma_2^2$$

$$\sigma_1^2 = \frac{\Sigma x_1^2}{N_1 - 1} = \frac{4754.509}{32-1} = 153.371$$

$$\sigma_2^2 = \frac{\Sigma x_2^2}{N_2 - 1} = \frac{5436.342}{38-1} = 146.928$$

$$df\ (31,37)\ F = \frac{\sigma_1^2}{\sigma_2^2} = \frac{153.371}{146.928} = 1.04$$

df (31,37) F จากตารางมีค่า 1.78 F ที่คำนวณได้ $1.04 < 1.78$

∴ ไม่มีนัยสำคัญระหว่างความแตกต่างแห่งความแปรปรวนของตัวอย่าง ใช้ตาราง t มาตรฐานในการทดสอบความมีนัยสำคัญของผลต่างของมัชฌิมเลขคณิตได้

2. ทดสอบความมีนัยสำคัญของผลต่างของมัชฌิมเลขคณิต

$$Ho : M_1 = M_2$$

$$\sigma_{(\bar{X}_1 - \bar{X}_2)} = \sqrt{\frac{\Sigma x_1^2 + \Sigma x_2^2}{N_1 + N_2 - 2}\left(\frac{1}{N_1} + \frac{1}{N_2}\right)}$$

$$= \sqrt{\frac{4754.509 + 5436.342}{32 + (38 - 2)}\left(\frac{1}{32} + \frac{1}{38}\right)}$$

$$= \sqrt{\frac{10190.851}{68}\ (0.031 + 0.026)}$$

$$= \sqrt{149.866\ (0.057)} = \sqrt{8.542} = 2.923$$

$$t = \frac{\bar{X}_2 - \bar{X}_1}{\sigma(X_1 - X_2)} = \frac{36.87 - 36.28}{2.92} = \frac{.59}{2.92} = .202$$

ที่ระดับความมีนัยสำคัญ .05 df(32 + 38 - 2) = 68 t มีค่า 1.96

t ที่คำนวณได้ .20 < 1.96 ∴ ความแตกต่างของ $\bar{X}$ ของตัวอย่างทั้งสองชุดไม่มีนัยสำคัญ

การเปรียบเทียบความสามารถในการทำแบบทดลอบเลือกตอบระหว่างนักเรียนชายกับนักเรียนหญิงโรงเรียนอินทรศึกษา

1. ทดสอบภาวะความแปรปรวนของกลุ่มตัวอย่าง

$$Ho : \sigma_1^2 = \sigma_2^2$$

$$\sigma_1^2 = \frac{\Sigma x_1^2}{N_1 - 1} = \frac{3452.433}{37-1} = 95.9$$

$$\sigma_2^2 = \frac{\Sigma x_1^2}{N_2 - 1} = \frac{2269.953}{23-1} = 103.180$$

$$df\ (22,36)\quad F = \frac{\sigma_2^2}{\sigma_1^2} = \frac{103.180}{95.9} = 1.076$$

df (22,36) F จากตารางมีค่า 1.87 F ที่คำนวณได้ $1.08 < 1.87$

∴ ไม่มีนัยสำคัญระหว่างความแตกต่างแห่งความแปรปรวนของตัวอย่าง ใช้ตาราง t มาตรฐานในการทดสอบความมีนัยสำคัญของผลต่างของมัชฌิมเลขคณิตได้

2. ทดสอบความมีนัยสำคัญของผลต่างของมัชฌิมเลขคณิต

$$Ho : M_1 = M_2$$

$$\sigma(\bar{X}_1 - \bar{X}_2) = \sqrt{\frac{\Sigma x_1^2 + \Sigma x_2^2}{N_1 + N_2 - 2}\left(\frac{1}{N_1} + \frac{1}{N_2}\right)}$$

$$= \sqrt{\frac{3452.433 + 2269.953}{37 + 23 - 2}\left(\frac{1}{37} + \frac{1}{23}\right)}$$

$$= \sqrt{\frac{5722.386}{58}\ (0.027 + 0.044)}$$

$$= \sqrt{98.662\ (.071)} = \sqrt{7.005} = 2.647$$

$$t = \frac{\bar{X}_1 - \bar{X}_2}{\sigma(\bar{X}_1 - X_2)} = \frac{39.65 - 39.43}{2.65} = \frac{.22}{2.65} = 0.083$$

ที่ระดับความมีนัยสำคัญ .05 df(37 + 23 - 2) = 58 t มีค่า 2.00 t ที่คำนวณได้ $.08 < 2.00$ ∴ ความแตกต่างของ $\bar{X}$ ของตัวอย่างทั้งสองชุดไม่มีนัยสำคัญ

การเปรียบเทียบความสามารถในการทำแบบทดสอบโคลซระหว่างนักเรียนชายกับนักเรียนหญิงโรงเรียนสิงหราชพิทยาคม

1. ทดสอบภาวะความแปรปรวน

$$Ho : \sigma_1^2 = \sigma_2^2$$

$$\sigma_1^2 = \frac{\Sigma x_1^2}{N_1 - 1} = \frac{7533.755}{(32-1)} = 243.024$$

$$\sigma_2^2 = \frac{\Sigma x_2^2}{N_2 - 1} = \frac{5205.193}{(38-1)} = 140.681$$

$$df(31,37) \quad F = \frac{\sigma_1^2}{\sigma_2^2} = \frac{243.024}{140.681} = 1.736$$

df(31,37) F จากตารางมีค่า 1.78 F ที่คำนวณได้ $1.74 < 1.78$

∴ ไม่มีนัยสำคัญระหว่างความแตกต่างแห่งความแปรปรวนของตัวอย่าง ใช้ตาราง t มาตรฐานในการทดสอบความมีนัยสำคัญของผลต่างของมัชฌิมเลขคณิตได้

2. ทดสอบความมีนัยสำคัญของผลต่างของมัชฌิมเลขคณิต

$$Ho : M_1 = M_2$$

$$\sigma(\bar{X}_1 - \bar{X}_2) = \sqrt{\frac{\Sigma x_1^2 + \Sigma x_2^2}{N_1 + N_2 - 2}\left(\frac{1}{N_1} + \frac{1}{N_2}\right)}$$

$$= \sqrt{\frac{7533.755 + 5205.193}{32 + (38 - 2)}\left(\frac{1}{32} + \frac{1}{38}\right)}$$

$$= \sqrt{\frac{12738.948}{68}\ (0.031 + 0.026)}$$

$$= \sqrt{187.338\ (0.057)} = \sqrt{10.678} = 3.27$$

$$t = \frac{\bar{X}_1 - \bar{X}_2}{\sigma(\bar{X}_1 - \bar{X}_2)} = \frac{37.31 - 33.66}{3.27} = \frac{3.65}{3.27} = 1.116$$

ที่ระดับความมีนัยสำคัญ .05 $df(32 + 38 - 2) = 68$ t มีค่า 1.96 t ที่คำนวณได้ $1.12 < 1.96$ ∴ ความแตกต่างของ $\bar{X}$ ของตัวอย่างทั้งสองชุดไม่มีนัยสำคัญ

การเปรียบเทียบความสามารถในการทำแบบทดสอบโคลซระหว่างนักเรียนชายกับนักเรียนหญิงโรงเรียนอินทรศึกษา

1. ทดสอบภาวะความแปรปรวนของกลุ่มตัวอย่าง

Ho : $\sigma_1^2 = \sigma_2^2$

$$\sigma_1^2 = \frac{\Sigma x_1^2}{N_1 - 1} = \frac{8474.497}{37-1} = 235.403$$

$$\sigma_2^2 = \frac{\Sigma x_2^2}{N_2 - 1} = \frac{2784.037}{23-1} = 126.547$$

$$df(22,36) \quad F = \frac{\sigma_1^2}{\sigma_2^2} = \frac{235.403}{126.547} = 1.86$$

df(22,36) F จากตารางมีค่า 1.87 F ที่คำนวณได้ 1.86 < 1.87 ∴ ไม่มีนัยสำคัญระหว่างความแตกต่างแห่งความแปรปรวนของตัวอย่าง ใช้ตาราง t มาตรฐานในการทดสอบความมีนัยสำคัญของผลต่างของมัชฌิมเลขคณิตได้

2. ทดสอบความมีนัยสำคัญของผลต่างของมัชฌิมเลขคณิต

Ho : $M_1 = M_2$

$$\sigma(\bar{X}_1 - \bar{X}_2) = \sqrt{\frac{\Sigma x_1^2 + \Sigma x_2^2}{N_1 + N_2 - 2}\left(\frac{1}{N_1} + \frac{1}{N_2}\right)}$$

$$= \sqrt{\frac{8474.497 + 2784.037}{37 + 23 - 2}\left(\frac{1}{37} + \frac{1}{23}\right)}$$

$$= \sqrt{\frac{11258.534}{58}(.027 + .044)}$$

$$= \sqrt{194.113\ (.071)} = \sqrt{13.782} = 3.712$$

$$t = \frac{\bar{X}_2 - \bar{X}_1}{\sigma(\bar{X}_1 - \bar{X}_2)} = \frac{41.96 - 40.97}{3.712} = \frac{.99}{3.712} = .267$$

ที่ระดับความมีนัยสำคัญ .05 df(37 + 23 - 2) = 58 t มีค่า 2.00 t ที่คำนวณได้ .27 < 2.00 ∴ ความแตกต่างของ $\bar{X}$ ของตัวอย่างทั้งสองชุดไม่มีนัยสำคัญ

ภาคผนวก ข.

แบบทดสอบ

แผนภาพแสดงอำนาจจำแนกและระดับความยาก

Name_____M.S._____

Instructions:

For each passage, you should

1. read the whole of it first for general meaning.
2. fill in each blank with only ONE word.
3. try to fill in EVERY blank. Guess if you cannot find any word.

I

One summer evening I was sitting by the open window, reading a good but rather frightening mystery story. After a time it became too dark_____me to read easily, so I put_____book down and got up to switch_____the light. I was just about to _____the curtains as well when I heard_____loud cry of "Help ! Help" It seemed_____come from the trees at the and _____the garden. I looked out but it_____now too dark to see anything clearly. _____immediately I heard the cry again. It_____like a child, although I could not_____how anybody could need help in our_____, unless one of the boys of the_____had climbed a tree and could not_____down.

I took a torch and picked_____a strong walking stick, thingking that this_____come in useful, too. Armed with these,_____went out into the garden. Once again_____heard the cry. There was no doubt_____it came from the trees at the_____of the garden. "Who's there?" I called_____as

I walked, rather nervously, down the_____that led to the trees. There was_____sign of anybody or anything. I came _____the conclusion that someone was playing a _____ silly joke on me.

Still feeling rather_____, I went back to the house and _____away the torch and the stick. I_____just sat down and begun to read_____book again when I was startled by_____cry of "Help! Help!", this time from_____behind my shoulder. I dropped my book_____jumped up. There, sitting on top of_____mantelpiece, was a large green and red_____. It was a parrot ! While I was out in the garden, the bird must have seen the light in my room and flown in through the open window.

There was once a man who used to earn his living by driving a motor-tricycle, or samlor, as they are called in Thailand. However, the government said that motor-samlors were_____dangerous, so he was offered a piece_____land out in the country and he _____told that he should live there by_____it.

The man was quite clever but_____had never dug the ground or worked_____the fields before. This particular piece of_____looked very rough and stony too. He_____ fancied the idea of digging it all_____himself.

So he thought of a plan. _____began to walk round and round the _____with his eyes fixed on the ground,_____ though he was looking for something. The_____was not far from a main road,_____a lot of people used to pass_____ it all day long on their way_____the village nearby. Soon, one of the_____stopped and asked the man whether he_____ lost anything.

"Oh, no. Nothing at all,"_____the man.

However, the villager was suspicious_____kept on asking questions until, in the_____, the man whispered to him, "All right,_____let you know what I'm doing if_____promise to keep it secret; I've been _____by the government to examine this land,_____they think that there may be some_____ metal hidden underground in this area. But_____tell anyone else, or they may find_____first."

That night, the villager gathered together_____friends and they dug up every part_____the field, searching for the

buried metal,_____they found nothing.

Next morning, when the_____samlor driver went out to look at_____plot of land, he was very pleased_____see it completely ploughed up and ready_____planting. He had no trouble in borrowing_____and seeds from his neighbours, because they_____heard the story that he would be_____ rich man soon.

After the seeds and plants had grown, he was able to live quite comfortably on his piece of land by working hard and planning carefully.

Centuries ago when a man was accused of a crime he often had to go through a strange test. In one country, the local prince used_____pot of boiling oil. A metal bar_____dropped into the pot. The prisoner then_____to put his hand into the hot _____and take out the bar. The prince_____that the oil would not burn the_____of an innocent man. He thought that _____quilty man would be burnt by the_____oil. There is no record that any_____ever plucked up the courage to try _____justice of this harsh test on himself.

_____foolish method was used in Europe hundreds_____ years ago. When a man was accused_____a crime, he was taken to a_____or a river. A rope was tied_____the man and he was thrown into_____water. If he floated, the people declared_____ he was guilty. They took him out_____the water and punished him. Sometimes he_____killed. However, if the man sank, the_____ said strongly that he was innocent. They_____him out of the water quickly and_____him free. We do not know that_____if an accused man had learnt how_____dive or swim under the water.

Today_____methods used to prove the truth are_____ better. In almost every part of the_____, an accused man is taken to a_____court. In England, a magistrate, who is_____ civil officer, judges the case when the_____is small. If the offence is serious,_____people on the jury, twelve in number, _____whether the prisoner is innocent or guilty, An innocent man is set free, while a judge decides the punishment for a guilty man.

Instructions:

1. For each passage, read it carefully within 15 minutes; the teacher will tell you to stop reading when the time is over.
2. When you are told to stop reading, turn to the next page and answer the questions without looking back at the passage. You are given 15 minutes to finish the questions of each passage.
3. Don't go on to the next passage until you are told to do so.
4. Write all of your answers on the answer sheet.

I

One summer evening I was sitting by the open window reading a good but rather frightening mystery story. After a time it became too dark for me to read easily, so I put my book down and got up to switch on the light. I was just about to draw the curtains as well when I heard a loud cry of "Help! Help!". It seemed to come from the trees at the end of the garden. I looked out but it was now too dark to see anything clearly. Almost immediately I heard the cry again. It sounded like a child, although I could not imagine how anybody could need help in our garden, unless one of the boys of the neighbourhood had climbed a tree and could not get down.

I took a torch and picked up a strong walking stick, thinking that this might come in useful, too. Armed with these, I went out into the garden. Once again I heard the cry. There was no doubt that it came from the trees at the end of the garden. "Who's there?" I called out as I walked, rather nervously, down the path that led to the trees. But there was no answer. With the help of my torch I examined the whole of that part of the garden and the lower branches of the trees. There was no sign of anybody or anything. I came to the conclusion that someone was playing a rather silly joke on me.

Still feeling rather puzzled, I went back to the house and put away the torch and the stick. I had just sat down and began to read my book again when I was startled by the cry of "Help! Help!, this

time from right behind my shoulder. I dropped my book and jumped up. There, sitting on top of the mantelpiece, was a large green and red bird. It was a parrot! While I was out in the garden, the bird must have seen the light in my room and flown in through the open window.

For each item, choose the best answer according to what you have read without looking back at the passage. Write your answers on the answer sheet.

1. When did the writer hear a loud cry for help?
   a. When he began to read a mystery story.
   b. While he was opening the window.
   c. When it began to be dark.
   d. When it was not too dark to read a story.

2. Where did the cry come from?
   a. The garden of the neighbourhood.
   b. The trees at the end of the writer's garden.
   c. The house next to the writer's.
   d. The path that led to the writer's garden.

3. Why was the writer sure that the cry came from there?
   a. The direction from which the cry came was close to his house.
   b. One who made the cry replied to his shout "Who's there?"
   c. He saw who made the cry.
   d. He heard the cry from that direction twice.

4. Why did the writer go into the garden?
   a. To find one who played a joke on him.
   b. To help the boy to get down from a tree.
   c. To examine who needed help.
   d. To see the boy who made a cry.

5. What did the writer think to be useful for him when he went out?
   a. A torch and a waling stick.
   b. A long branch of a tree.
   c. A torch and a branch of a tree.
   d. A strong stick and his parrot.

6. What was the writer's feeling while he was in the garden?
   a. Delightful and nervous.
   b. Nervous and angry.
   c. Angry and displeased.
   d. Doubtful and nervous.

7. In the garden, why didn't he find who made the cry?
   a. The cry maker hid among thick trees.
   b. It was too dark for him to see anything clearly.
   c. He was too frightened to have a look throughly.
   d. The cry maker came into his room when he was in the garden.

8. Did the writer look at every part of the garden carefully?
   a. Yes, he did.
   b. No, he did.
   c. Yes, he didn't.
   d. No, he didn't.

9. Why did the writer think that someone played a joke on him?
   a. The sound was like a child's cry.
   b. He found nothing in the garden.
   c. He saw one of the boys of the neighbourhood in his garden.
   d. He saw one of the boys of the neighbourhood on the tree.

10. How did the writer feel when he went back to his house?
   a. Startled.
   b. Nervous.
   c. Puzzled.
   d. Frightened.

11. What made the writer drop his book which he began to read again?
   a. The cry for help from behind his shoulder.
   b. The cry of "Help! Help!" from the end of his garden.
   c. The cry of "Help! Help!" from the neighbourhood.
   d. The cry for help from the back of his house.

12. Whose cry was it?
   a. A naughty boy's.
   b. A small bird's.
   c. A parrot's.
   d. A neighbour's.

13. How was <u>a torch</u> useful for the writer?
   a. It guided him to one who made the cry.
   b. It helped him see anything in the dark more clearly.
   c. He used it in the garden every morning.
   d. He used it as a weapon.

14. What is a mystery story?
    a. A story full of bad characters.
    b. A story full of secret events.
    c. A story full of pleasant events.
    d. A story which can be understood easily.

15. Which phrase is the meaning of "examine"?
    a. Test knowledge.
    b. Search for.
    c. Look at carefully.
    d. Look for.

16. I was startled by the cry of "Help! Help!" What does "startled" means?
    a. Puzzled and nervous.
    b. Surprised and frightened.
    c. Angry.
    d. Annoyed.

17. He supplied himself with a big stick. Which of the following had the same meaning as the underlined words?
    a. Frightened with.
    b. Startled by.
    c. Led to.
    d. Armed with.

18. Which word is the same meaning as "foolish"?
    a. Silly.
    b. Rather.
    c. Puzzled.
    d. Frightening.

19. "I let it fall and it was broken." Which words can be put instead of the underlined words?
    a. Armed with it.
    b. Dropped it.
    c. Put it away.
    d. Sat down on it.

20. Which of the following titles is suitable for this passage?
    a. A talkative parrot.
    b. A silly joke.
    c. An interesting bird.
    d. An exciting moment.

There was once a man who used to earn his living by driving a motor-tricycle, or samlor, as they are called in Thailand. However, the government said that motor-samlors were too dangerous, so he was offered a piece of land out in the country and he was told that he should live there by cultivating it.

The man was quite clever but he had never dug the ground or worked in the fields before. This particular piece of ground looked very rough and stony too. He hardly fancied the idea of digging it all by himself.

So he thought of a plan. He began to walk round the field with his eyes fixed on the ground, as though he was looking for something. The land was not far from a main road, so a lot of people used to pass by it all day long on their way to the village nearby. Soon, one of the villagers stopped and asked the man whether he had lost anything.

"Oh, no. Nothing at all," answered the man.

However, the villager was suspicious and kept on asking questions until, in the end, the man whispered to him. "All right, I'll let you know what I'm doing if you promise to keep it secret. I've been sent by the government to examine this land, because they think that there may be some valuable metal hidden underground in this area. But don't tell anyone else, or they may find it first."

That night, the villager gathered together his friends and they dug up every part of the field, searching for the buried metal, but they found nothing.

Next morning, when the former samlor driver went out to look at his plot of land, he was very pleased to see it completely ploughed up and ready for planting. He had no trouble in borrowing plants and seeds from his neighbours, because they had heard the story that he would be a rich man soon.

After the seeds and plants had grown, he was able to live quite comfortable on his piece of land by working hard and planning carefully.

For each question choose the best answer according to the passage you have read without looking back at the passage. Write your answers on the answer sheet.

1. Did the man in this story drive a motor-tricycle all his life?
   a. No, he didn't
   b. Yes, he did.
   c. No, he did.
   d. Yes, he didn't.

2. Why did the government offer him a piece of land?
   a. His work was useless.
   b. His work was too hard.
   c. His work was not suitable for him.
   d. His work was too dangerous.

3. Which of the following best explains "to cultivate the land"?
   a. To break up the land and prepare it for planting.
   b. To destroy all plants on the land.
   c. To cut it into pieces.
   d. To live on the land.

4. Why didn't he know how to dig the ground?
   a. It was too difficult for everyone to dig it.
   b. He was not clever.
   c. He never saw the fields before.
   d. He never worked in the field before.

5. When did the man think he could not dig the whole land by himself?
   a. When he was looking for valuable metal.
   b. When he was working in the field.
   c. When he saw the ground was rough.
   d. When he tried to dig it.

6. "He began to walk round and round with his eyes fixed on the ground" What did he intend to do?
   a. He wanted to find valuable metal.
   b. He tried to hide his face.
   c. He thought of the method of digging the ground.
   c. He pretended that he was looking for something.

7. Was the land far from a main road? Give a reason.
   a. Yes, because no one saw what the man was doing.
   b. No, because people who went along the main road could see the man's land.
   c. No, because people who lived near the man's land said it was not far.
   d. Yes, because no one saw a main road.

8. What did one of the villagers think when he saw the man walking round and round?
   a. The villager thought that the man was looking for what he had lost.
   b. The villager thought that the man was looking for valuable metal.
   c. The villager thought that the man was mad.
   d. The villager thought there was something hidden underground.

9. Was that villager pleased with the man's answer to his first question?
   a. Yes, he did not ask any more questions.
   b. Yes, he helped the man find what he had lost.
   c. No, he asked many questions after that.
   d. No, he was angry and walked away to the village.

10. What did the villager have to keep secret?
   a. The man could not fancy any idea.
   b. The man had told him about valuable metal.
   c. The man could dig the ground.
   d. The man could not dig the ground.

11. When he had to keep it secret, what should he do?
   a. He should not tell anybody about it.
   b. He should tell his neighbour.
   c. He should bury it underground.
   d. He should hide it.

12. Why did the villager and his friends dig up the man's field?
    a. They wanted to help him plough the field.
    b. They liked to dig the ground.
    c. They wanted to be the first in digging that field.
    d. They wanted to be the first in finding the buried metal.

13. Did the man have to plough the field?
    a. No, because many villagers had already ploughed it when they searched for valuable metal.
    b. No, because many villagers were willing to help him plough it.
    c. Yes, because everybody left him when he could not find valuable metal.
    d. Yes, because every villager knew that it was impossible to find any valuable things there.

14. Where did the man get plants and seeds from?
    a. He bought them from the market in the village.
    b. He found them on his piece of land.
    c. He borrowed them from his neighbours.
    d. He bought them from his neighbours.

15. Why did he get plants and seeds easily?
    a. His heighbours had a lot of plants and seeds.
    b. His neighbours were kind.
    c. His neighbours thought that he would be rich,
    d. His neighbours were rich.

16. Did the man succeed or fail in what he planned?
    a. He failed.
    b. Half of it was successful.
    c. Half of it was unsuccessful.
    d. He was successful.

17. What was the result of his careful planning?
    a. He became poor.
    b. He lived comfortably
    c. He bought some more land from his neighbour.
    d. He bought some more plants from his neighbour.

18. What was the valuable thing he got at last?
    a. His bigger land.
    b. A new samlor.
    c. A kind of valuable metal.
    d. His happy life.

19. How was his land at the end of the story?
    a. It was wider than before.
    b. It was full of valuable metal.
    c. It was full of well-grown plants.
    d. It was too poor to grow any plants.

20. What do you think about the man in this story?
    a. He was good at digging the ground.
    b. He was rather clever and deligent.
    c. He was rather lazy.
    d. He was a good driver.

Centuries ago when a man was accused of a crime he often had to go through a strange test. In one country, the local prince used a pot of boiling oil. A metal bar was dropped into the pot. The prisoner then had to put his hand into the oil and take out the bar. The prince believed that the oil would not burn the hand of an innocent man. He thought that a guilty man would be burnt by the hot oil. There is no record that any prince ever plucked up the courage to try the justice of this harsh test on himself.

Another follish method was used in Europe hundreds of years ago. When a man was accused of a crime, he was taken to a pool or a river. A rope was tied to the man and he was thrown into the water. If he floated, the people declared that he was guilty. They took him out of the water and punished him. Sometimes he was killed. However, if the man sank, the people said strongly that he was innocent. They pulled him out of the water quickly and set him free. We do not know what happened if an accused man had learnt how to dive or swim under the water.

Today the method used to prove the truth are much better. In almost every part of the world, an accused man is taken to a law court. In England, a magistrate, who is a civil officer, judges the case when the offence is small. If the offence is serious, the people on the jury, twelve in number, decide whether the prisoner is innocent or guilty. An innocent man is set free, while a judge decides the punishment for a guilty man.

For each item, choose the best answer according to what you have read without looking back at the passage. Write your answers on the answer sheet.

1. An accused man is _____.
   a. a man who is said to have done something wrong.
   b. a man who is punished by a judge,
   c. a man who decides the punishment.
   d. a prisoner who is innocent.

2. A man who is proved that he has not done anything wrong is called _____.
   a. a prisoner.
   b. an accused man.
   c. an innocent man.
   d. a guilty man.

3. A guilty man is _____.
   a. a man who is innocent.
   b. a man who is proved to have done something wrong.
   c. a man who is set free.
   d. a man who is out of prison.

4. The boiling oil test was brought into use by _____.
   a. one of the princes of Europe.
   b. the prince of one country.
   c. every prince of Europe.
   d. one of the accused men in one country.

5. No one heard that the person who brought the boiling oil test into use ever tried it on himself. It was possible that _____.
   a. this test was very fair.
   b. he was brave to bring this boiling oil test into use.
   c. he knew that he would not be burnt by the boiling oil.
   d. he was also afraid of being burnt by the boiling oil.

6. In order to prove that he was innocent, an accused man had to _____.
   a. put his hand into the boiling oil and take out a metal ball.
   b. put his hand into the boiling oil and take out a metal bar.
   c. show his courage by putting his hand into the boiling water for a minute.
   d. boil the oil in the pot by himself.

7. It was believed that _____.
   a. a guilty man's hand would not be burnt by the hot oil.
   b. an innocent man's hand would float on the hot oil.
   c. an innocent man's hand would not be burnt by the hot oil.
   d. a guilty man would be killed by the hot oil.

8. The words "harsh test" told us that this type of test was_____.
   a. not unjust.
   b. fair.
   c. not rough
   d. cruel.

9. "Another foolish method was used in Europe hundreds of years ago." This method was _____.
   a. the method of throwing an accused man into the water.
   b. the method of throwing an accused man into the boiling oil.
   c. the same method as the boiling oil test.
   d. the method of taking an accused man to a law court.

10. By the method in number 9, an accused man had to be_____.
   a. tied with a rope and thrown into a pool or a river.
   b. tied with a rope and thrown into the boiling oil pot.
   c. punished and floated on the water.
   d. punished and floated on the boiling oil.

11. An accused man was believed to be guilty if _____.
   a. he died.
   b. he could dive.
   c. he floated on the water.
   d. he sank.

12. An accused man would be set free if he _____.
   a. floated on the water.
   b. sank.
   c. could swim under the water.
   d. was pulled out of the water quickly.

13. The two examples of the methods used to prove the truth in those days were _____.
   a. fair
   b. suitable
   c. just
   d. silly.

14. In 1970, these two methods _____.
    a. disappeared from almost every part of the world.
    b. were still used in most countries in the world.
    c. were popular.
    d. were brought back into use.

15. Today, if a man is accused of a crime, he is _____.
    a. sent to prison.
    b. decided the punishment by people.
    c. taken to a law court.
    d. taken to a pool or a river.

16. The method mentioned in number 15 is _____.
    a. silly.
    b. follish.
    c. funny.
    d. fair.

17. "Today the methods used toprove the truth are much better." They are better because _____.
    a. an accused person gets a fair trial.
    b. they are popular.
    c. the old methods are fairer.
    d. an innocent person is punished.

18. The better methods in number 17 are used in _____.
    a. England.
    b. U.S.A.
    c. Thailand.
    d. almost very part of the world.

19. In England, the duty of a magistrate is _____.
    a. to judge a serious case.
    b. to judge a small case.
    c. to arrest people who are accused.
    d. to send accused men to prison.

20. In England, twelve chosen persons who have to decide the truth of a serious case are called _____.
    a. the judge.
    b. the magistrate.
    c. the jury.
    d. the law court.

ANSWER SHEET

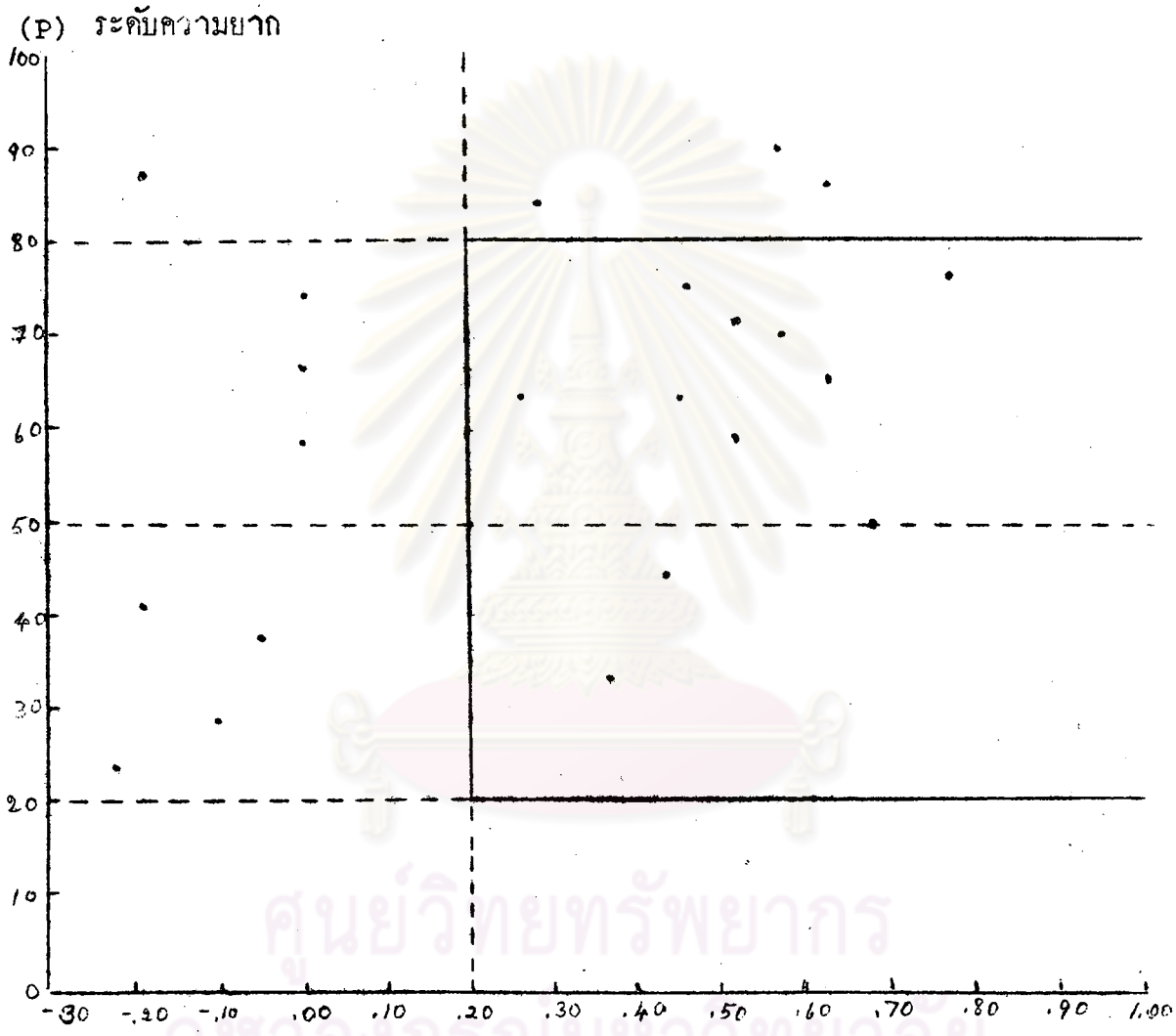
NAME MISS / MR. .....M.S.....

Cross (X) the letter of the correct answer in each item.

Example: 1. a b c d (b is the correct answer)

1. a b c d	1. a b c d	1. a b c d
2. a b c d	2. a b c d	2. a b c d
3. a b c d	3. a b c d	3. a b c d
4. a b c d	4. a b c d	4. a b c d
5. a b c d	5. a b c d	5. a b c d
6. a b c d	6. a b c d	6. a b c d
7. a b c d	7. a b c d	7. a b c d
8. a b c d	8. a b c d	8. a b c d
9. a b c d	9. a b c d	9. a b c d
10. a b c d	10. a b c d	10. a b c d
11. a b c d	11. a b c d	11. a b c d
12. a b c d	12. a b c d	12. a b c d
13. a b c d	13. a b c d	13. a b c d
14. a b c d	14. a b c d	14. a b c d
15. a b c d	15. a b c d	15. a b c d
16. a b c d	16. a b c d	16. a b c d
17. a b c d	17. a b c d	17. a b c d
18. a b c d	18. a b c d	18. a b c d
19. a b c d	19. a b c d	19. a b c d
20. a b c d	20. a b c d	20. a b c d

แผนภาพแสดงอำนาจจำแนกและระดับความยาก
แบบทดสอบความเข้าใจในการอ่านแบบเลือกตอบ (ตอนที่ 1)
ฉบับครั้งที่ 1



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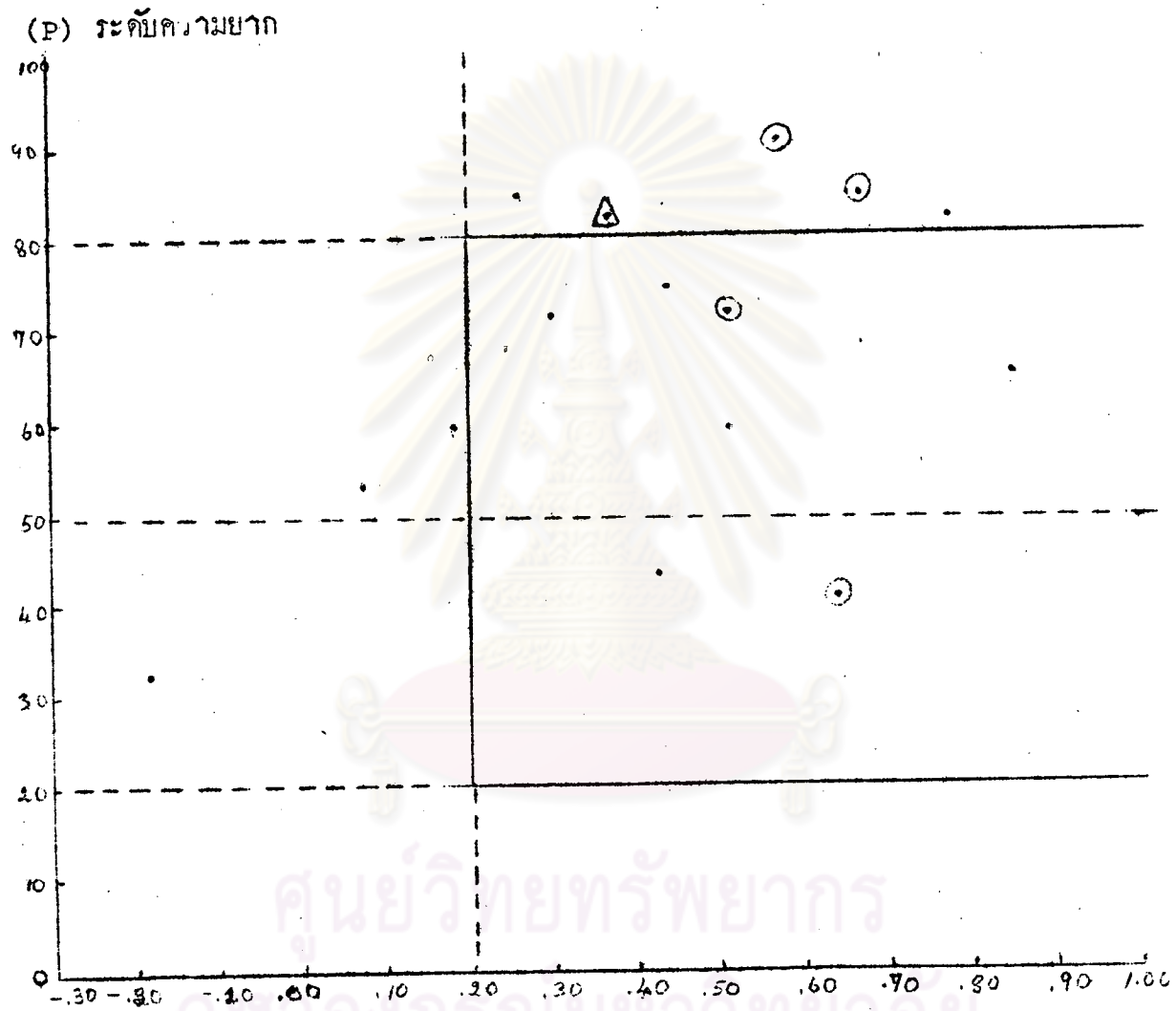
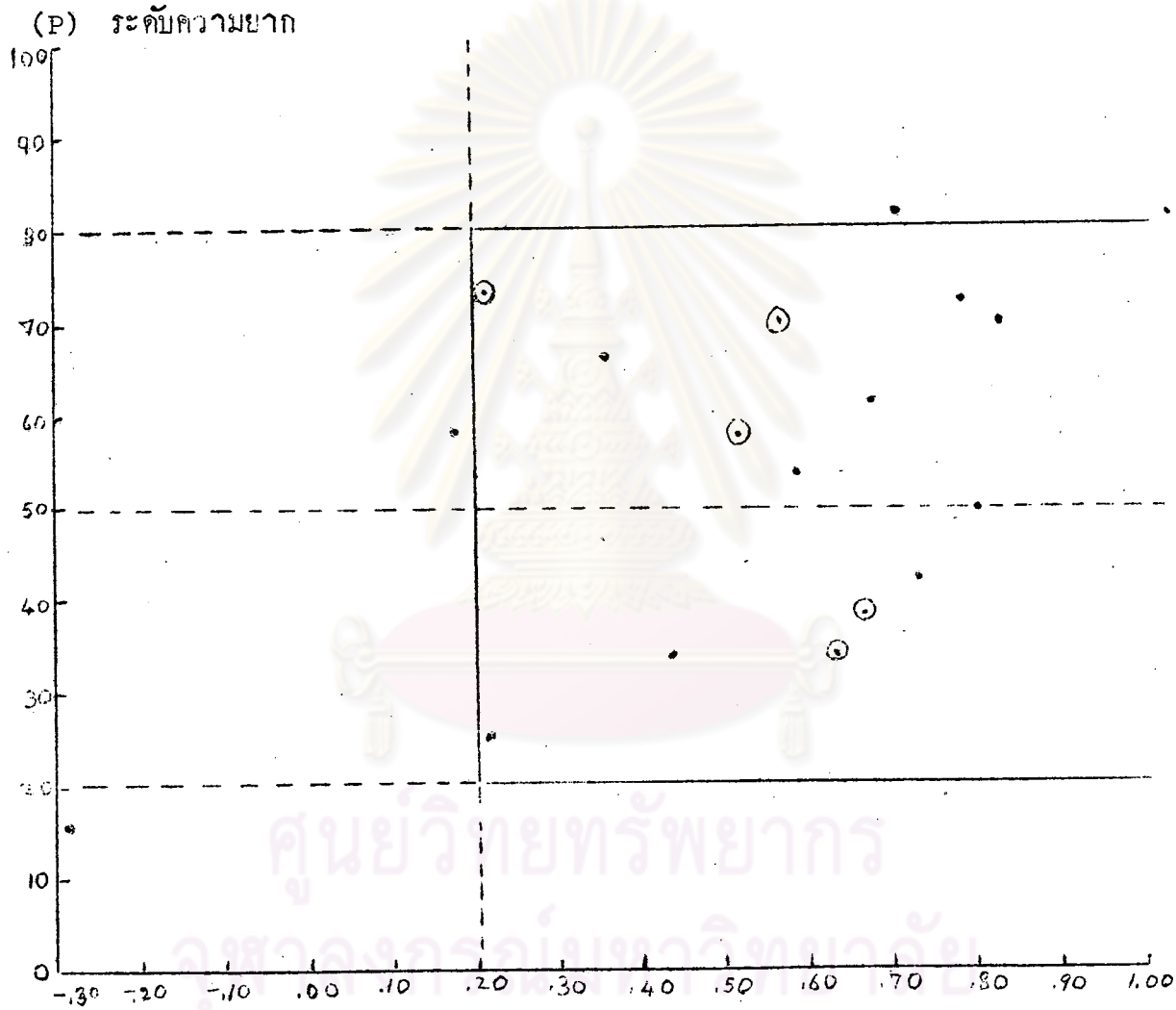
แบบทดสอบความเข้าใจในการอ่านแบบเลือกตอบ (ตอนที่ 2)
สร้างครั้งที่ 1



⊙ มี 2 ข้อ

△ มี 3 ข้อ

แผนภาพแสดงอำนาจจำแนกและระดับความยาก
แบบทดสอบความเข้าใจในการอ่านแบบเลือกตอบ (ตอนที่ 3)
สร้างครั้งที่ 1



(r) อำนาจจำแนก

⊙ มี 2 ข้อ

แผนภาพแสดงอำนาจจำแนกและระดับความยาก
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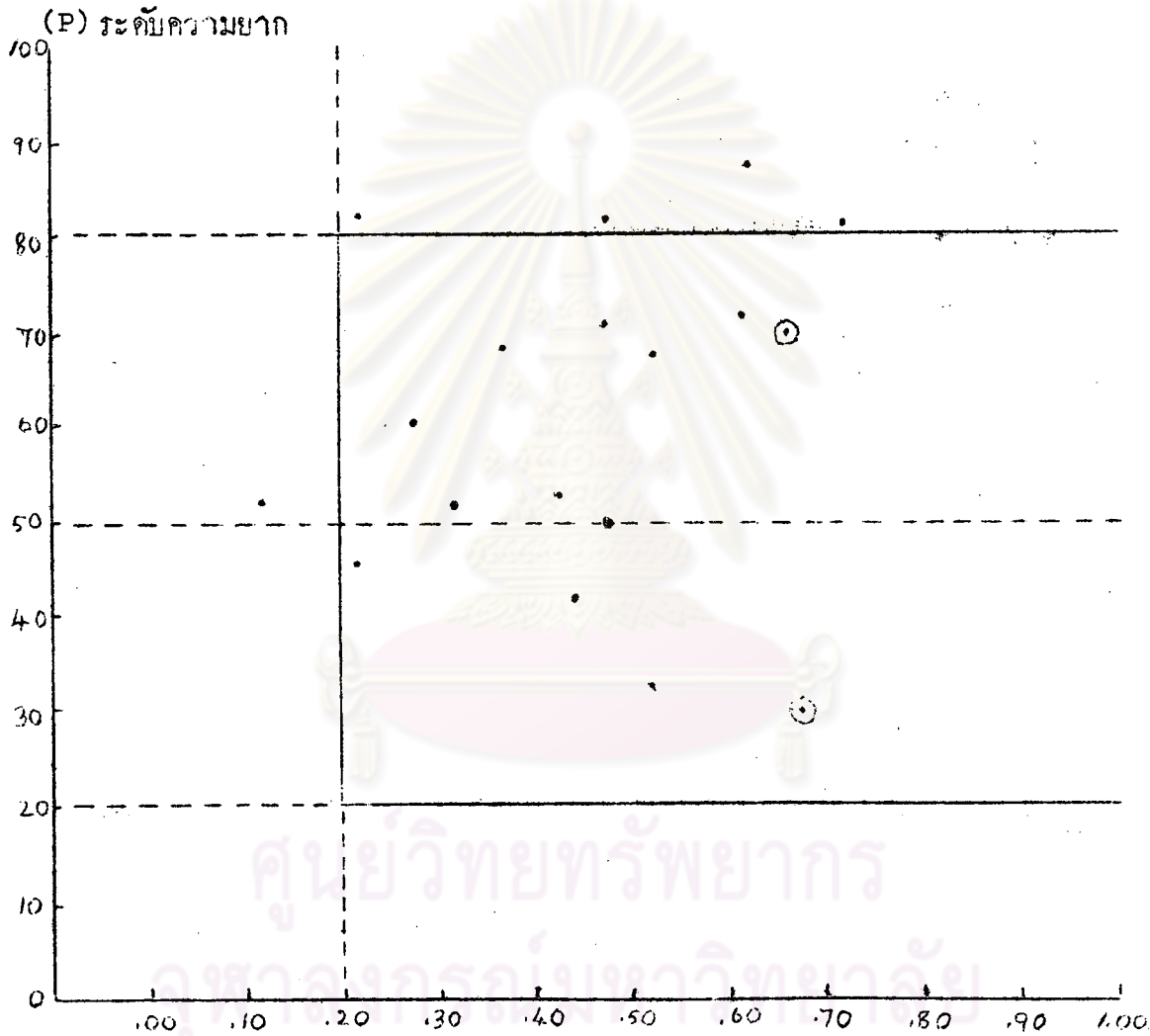
แก้ไขครั้งที่ 1
ใช้เป็นเครื่องมือในการเก็บรวบรวมข้อมูล



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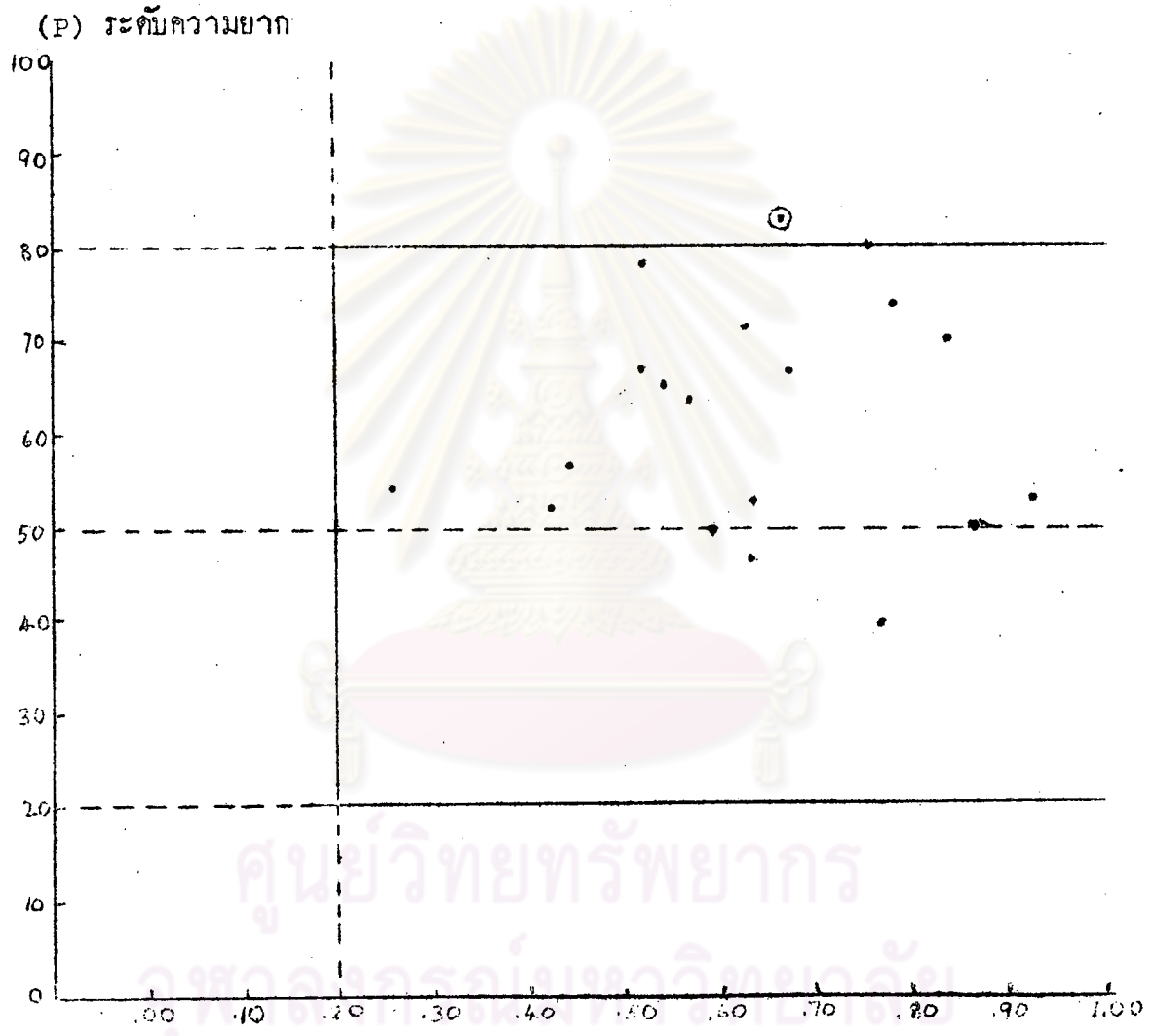

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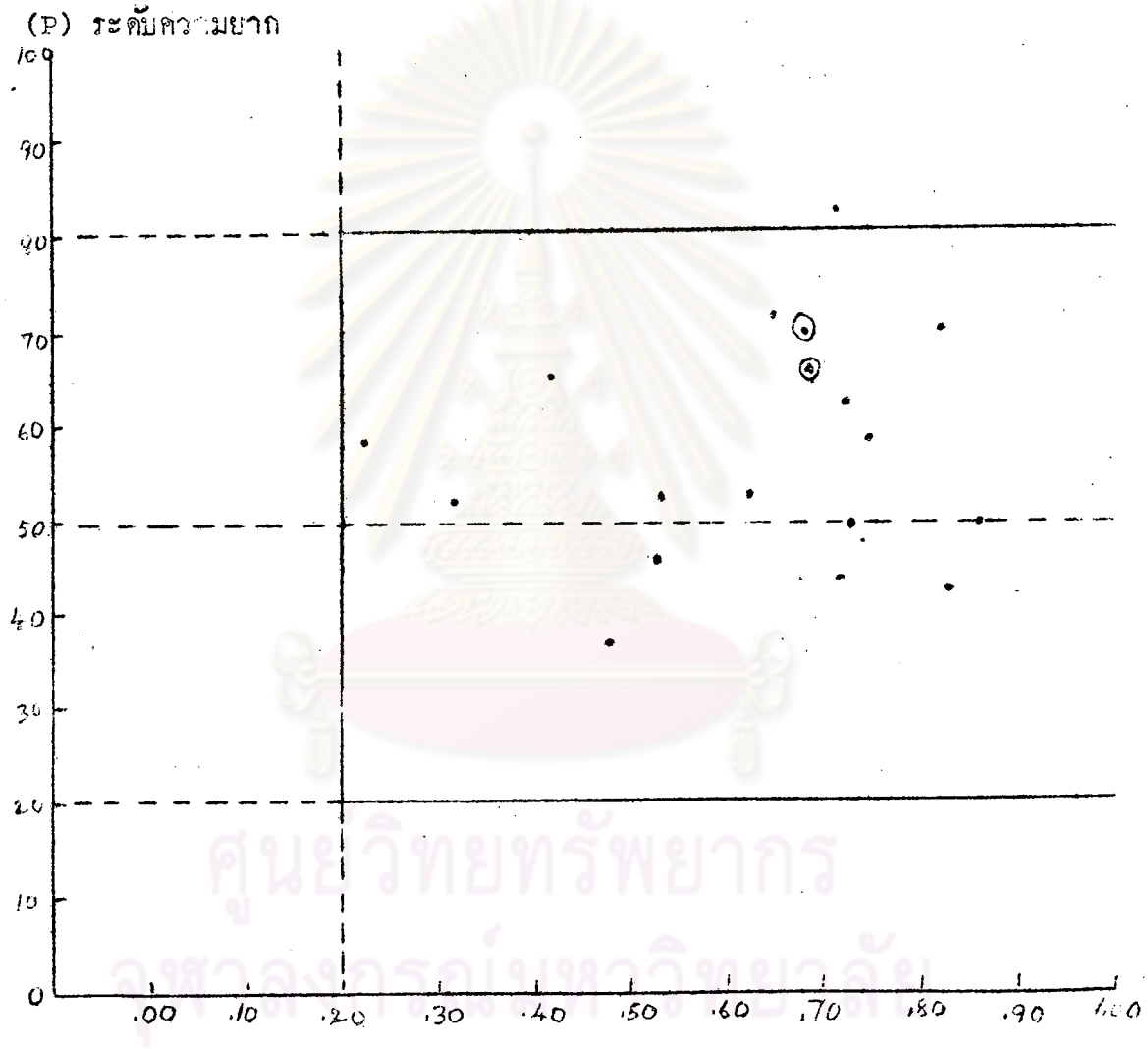

⊙ มี 2 ข้อ

ประวัติการศึกษา

ชื่อ นางสาวนิรมล สถิตย์ทอง

วุฒิ ครุศาสตรบัณฑิต
สำเร็จการศึกษาจากคณะครุศาสตร์ จุฬาลงกรณ์มหาวิทยาลัย ปีการศึกษา 2512