PSYCHOMETRICS

2016, NOVEMBER, PARTIAL 1 TYPE B

EXERCISE 1

Ordering columns:

	3	4	1	2	5	
A	1	1	1	1	1	5
B	0	0	1	1	1	3
C	0	1	1	1	1	4
D	0	0	0	0	1	1
E	0	1	1	1	1	4
	1	2	4	4	5	

Ordering lines:

	3	4	1	2	5	
A	1	1	1	1	1	5
C	0	1	1	1	1	4
E	0	1	1	1	1	4
B	0	0	1	1	1	3
D	0	0	0	0	1	1
	1	2	4	4	5	

$$CR = 1 - \frac{E}{P \times I} = 1 - \frac{0}{5 \times 5} = 1$$

EXERCISE 2

	A	B	C*	
HIGHEST 25%	3	62	35	100
INTERMEDIATES 50%	90	80	30	
LOWEST 25%	40	31	29	100
	133	173	94	N=400

a) $IDc = p - \frac{q}{k-1} = 0.235 - \frac{0.765}{2} = -0.15$ (0.765 → 0.392)

$$p = \frac{94}{400} = 0.235$$

$$q = 1 - p = 1 - 0.235 = 0.765$$

It's an extremely difficult item

b)

$$D = p_u - p_i = 0.35 - 0.29 = 0.06$$

$$p_u = \frac{35}{100} = 0.35 \qquad p_i = \frac{29}{100} = 0.29$$

$D = 0.06 < 0.1$ → The item is useless

EXERCISE 3

	1 ans.	X	X-i	$(X-i)^2$
A	0 b	2	2	4
B	0 c	0	0	0
C	0 b	2	2	4
D	0 c	1	1	1
E	1	3	2	4
F	1	3	2	4
G	0 c	2	2	4
			11	21

$$r_{pb} = \frac{\bar{X}_1 - \bar{X}_T}{S_x}\sqrt{\frac{p}{q}} = \frac{1 - 1.57}{0.73}\sqrt{\frac{0.29}{0.71}} = -0.5$$

-0.57

$\sqrt{0.41} = 0.64$

$$\bar{X}_1 = \frac{0+1+2}{3} = 1$$

$$\bar{X}_T = \frac{11}{7} = 1.57$$

$$S_x = \sqrt{\frac{\Sigma X^2}{N} - \bar{X}^2} = \sqrt{\frac{21}{7} - 1.57^2} = \sqrt{3 - 2.46} = \sqrt{0.54} = 0.73$$

$$p = \frac{2}{7} = 0.29 \qquad q = 1 - p = 1 - 0.29 = 0.71$$

The rpb of the distractor is negative. It works right

EXERCISE 4

a) Item 1 is slightly easy, item 2 is slightly difficult and item 3 is quite difficult.

Item 1 discriminates well ($0.3 \leq D \leq 0.39$); item 2 is useless ($D < 0.1$); and item 3 needs revision ($0.1 \leq D \leq 0.19$).

b) ITEM 1: alternative 3 because its proportion is < 0.1

ITEM 2: alternative 2 because, being the right answer, should have a positive rbis; and alternative 3 because, being a distractor, should have a positive rbis

ITEM 3: all of them work right