PSYCHOMETRICS, PARTIAL 2
November, 2018. Type A

① $R_1 = S_j \cdot r_{jx} = 1.26 \cdot 0.21 = 0.27$

⑤ $\alpha = \frac{n}{n-1}\left(1 - \frac{\Sigma S^2_j}{S^2_x}\right) = \frac{3}{3-1}\left(1 - \frac{10+12+11}{33}\right) = \frac{3}{2}\left(1 - \frac{33}{33}\right) = 1.5 \cdot 0 = 0$

⑥ $B = \frac{S^2_x - \Sigma S^2_j}{S^2_x\left[1 - \Sigma\left(\frac{n_j}{n}\right)^2\right]} = \frac{33 - (10+12+11)}{} = 0$

⑧ $Lim = X \pm E_{max} = 12 \pm 4.12$ < 16.12 / 7.88

$r_{xe} = 0.3$

$S^2_x = 49 \rightarrow S_x = 7$

$X = 12$

$z_c\ 95\% = 1.96$

$E_{max} = z_c \cdot S_e = 1.96 \cdot 2.1 = 4.12$

$S_e = S_x\sqrt{1 - r_{xx'}} = 7\sqrt{1 - 0.91} = 7\sqrt{0.09} = 7 \cdot 0.3 = 2.1$

$r_{xx'} = 1 - r^2_{xe} = 1 - 0.3^2 = 1 - 0.09 = 0.91$

⑨

NC 90% → $\alpha = 0.1$

$Lim = X \pm E_{max} = 12 \pm 6.64$ < 18.64 / 5.36

$E_{max} = S_e \cdot k = 2.1 \cdot 3.16 = 6.64$

$S_e = S_x\sqrt{1 - r_{xx'}} = 2.1$

$k = \sqrt{\frac{1}{0.1}} = \sqrt{10} = 3.16$

⑩

$z_c\ 99\% \rightarrow z_c = 2.58$

$\bar{X} = 10$

$Lim = T' \pm E_{max} = 11.82 \pm 5.16$ < 16.98 / 6.66

$T' = r_{xx'}(X - \bar{X}) + \bar{X} = 0.91(12 - 10) + 10 = 0.91 \cdot 2 + 10 = 1.82 + 10 = 11.82$

$E_{max} = z_c \cdot S_{Tx} = 2.58 \cdot 2 = 5.16$

$S_{Tx} = S_e \cdot \sqrt{r_{xx'}} = 2.1\sqrt{0.91} = 2.1 \cdot 0.95 = 2$