

$$\begin{aligned}\sigma^2_{17} &= \frac{197 - \frac{5041}{27}}{27} \\ &= 0.38\end{aligned}$$

$$\begin{aligned}\sigma^2_{18} &= \frac{245 - \frac{(79)^2}{27}}{27} \\ \sigma^2_{18} &= \frac{245 - \frac{6241}{27}}{27} \\ &= 0.51\end{aligned}$$

$$\begin{aligned}\sigma^2_{19} &= \frac{201 - \frac{(71)^2}{27}}{27} \\ \sigma^2_{19} &= \frac{201 - \frac{5041}{27}}{27} \\ &= 0.53\end{aligned}$$

$$\begin{aligned}\sigma^2_{20} &= \frac{196 - \frac{(70)^2}{27}}{27} \\ \sigma^2_{20} &= \frac{196 - \frac{4900}{27}}{27} \\ &= 0.54\end{aligned}$$

$$\begin{aligned}\sigma^2_{21} &= \frac{262 - \frac{(82)^2}{27}}{27} \\ \sigma^2_{21} &= \frac{262 - \frac{6561}{27}}{27} \\ &= 0.48\end{aligned}$$

$$\begin{aligned}\sigma^2_{22} &= \frac{257 - \frac{(81)^2}{27}}{27} \\ \sigma^2_{22} &= \frac{257 - \frac{6561}{27}}{27} \\ &= 0.52\end{aligned}$$

$$\sigma^2_{23} = \frac{250 - \frac{(80)^2}{27}}{27}$$

$$\begin{aligned}\sigma^2_{23} &= \frac{250 - 6400}{27} \\ &= 0.48\end{aligned}$$

$$\sigma^2_{24} = \frac{246 - \frac{(78)^2}{27}}{27}$$

$$\begin{aligned}\sigma^2_{24} &= \frac{246 - \frac{6084}{27}}{27} \\ &= 0.76\end{aligned}$$

$$\sigma^2_{25} = \frac{222 - \frac{(74)^2}{27}}{27}$$

$$\begin{aligned}\sigma^2_{25} &= \frac{222 - \frac{5476}{27}}{27} \\ &= 0.71\end{aligned}$$

$$\sigma^2_{26} = \frac{232 - \frac{(76)^2}{27}}{27}$$

$$\begin{aligned}\sigma^2_{26} &= \frac{232 - \frac{6084}{27}}{27} \\ &= 0.67\end{aligned}$$

$$\sigma^2_{27} = \frac{244 - \frac{(78)^2}{27}}{27}$$

$$\begin{aligned}\sigma^2_{27} &= \frac{244 - \frac{6084}{27}}{27} \\ &= 0.69\end{aligned}$$

$$\sigma^2_{28} = \frac{288 - \frac{(84)^2}{27}}{27}$$

$$\begin{aligned}\sigma^2_{28} &= \frac{28 - \frac{7056}{27}}{27} \\ &= 0.99\end{aligned}$$

$$\sigma^2_{29} = \frac{248 - \frac{(78)^2}{27}}{27}$$

$$\sigma^2_{29} = \frac{248 - \frac{6084}{27}}{27}$$

$$= 0.84$$

$$\sigma^2_{30} = \frac{272 - \frac{(82)^2}{27}}{27}$$

$$\sigma^2_{30} = \frac{272 - \frac{6724}{27}}{27}$$

$$= 0.85$$

$$\sigma^2_{31} = \frac{22 - \frac{(75)^2}{27}}{27}$$

$$\sigma^2_{31} = \frac{223 - \frac{5625}{27}}{27}$$

$$= 0.54$$

$$\sigma^2_{32} = \frac{266 - \frac{(82)^2}{27}}{27}$$

$$\sigma^2_{32} = \frac{266 - \frac{6724}{27}}{27}$$

$$= 0.63$$

$$\sigma^2_{33} = \frac{269 - \frac{(81)^2}{27}}{27}$$

$$\sigma^2_{33} = \frac{269 - \frac{6561}{27}}{27}$$

$$= 0.96$$

Calculations of Varians Score for Each Item :

$$\begin{aligned} \Sigma \sigma b^2 &= 0.88 + 0.67 + 0.56 + 0.69 + 0.67 + 0.60 + 0.91 + 0.85 + 0.62 + \\ &0.69 + 0.82 + 0.66 + 0.51 + 0.61 + 0.46 + 0.69 + 0.38 + 0.51 + 0.53 + 0.54 \\ &+ 0.48 + 0.52 + 0.48 + 0.76 + 0.71 + 0.67 + 0.69 + 0.99 + 0.84 + 0.85 + \\ &0.54 + 0.63 + 0.96 \\ \Sigma \sigma b^2 &= 22.02 \end{aligned}$$

Total of Variants :

$$\sigma^2_t = \frac{\Sigma x^2 - \frac{(\Sigma x)^2}{N}}{N}$$

$$\sigma^2_t = \frac{197987 - \frac{(2541)^2}{33}}{33}$$

$$\sigma^2_t = \frac{197987 - 195657}{33}$$

$$\sigma^2_t = \frac{2330}{33}$$

$$\sigma^2_t = 70.61$$

Alpha Formula :

$$r_{ii} = \left( \frac{k}{k-1} \right) \left( 1 - \frac{\Sigma \sigma b^2}{\sigma^2_t} \right)$$

$$r_{ii} = \left( \frac{33}{33-1} \right) \left( 1 - \frac{22.02}{70.61} \right)$$

$$r_{ii} = \left( \frac{33}{32} \right) (1 - 0,31)$$

$$r_{ii} = (1.03)(0.69)$$

$$r_{ii} = \mathbf{0.71 \text{ (reliable)}}$$