**Lampiran 4. Perhitungan Validitas dan Reliabilitas Butir Soal**

1. **Validitas Tes**

SDt = $√\frac{∑xt2}{N} $-$ (\frac{∑xt}{N})2$

 **=**$√\frac{19896}{30} $-$ (\frac{754}{30})2$

 **=√**663,2 – 631,5

 =√31,7

 =5,63

Mt = $\frac{∑xt}{N}$

 **=** $\frac{754}{30}$

= 25,13

Validitas Soal No

1. Dik mt = 25,13

SDt = 5,63

P = 0,8

Q = 0,2

 $mp=\frac{29+28+27+28+26+20+27+27+27+23+23+25+26+22+11+30+30+30+30+30+30+30+30+30}{24}$

 = $\frac{639}{24}$

 =26,62

 rpbi= $\frac{mp-mt}{SDt}$ .√ $\frac{p}{q}$

 = $\frac{26,62-25,13}{5,63}$ . √ $\frac{0,8}{0,2}$

 =$\frac{1,49}{5,63}$ .$√ \frac{0,8}{0,2}$

 =0,26 .√4

 =0,26 . 2

 = 0,52 ( Status Valid)

1. **Reliabilitas Tes**

Vt = ∑xt – (∑x)2

 N

Soal No 1

1. Vt = 242 – $\frac{\left(24\right)2}{30}$

 30

 =576 – $\frac{\left(576\right)}{30}$

 30

 = $\frac{576-19,2}{30}$

 = $\frac{556,8}{30}$

 =18,56

Dik p = 24,8

 q = 5,15

 Vt = 616,31

 K = 20

r11 = ( $\frac{k}{k-1})$( $\frac{Vt-∑pq}{Vt}$)

r11 = ( $\frac{20}{20-1})$( $\frac{616,31-∑24,8 .5,15}{616,31}$)

 = ( $\frac{20}{19})$( $\frac{616,31-∑127,72}{616,31}$)

 = ( $1,05)$( $\frac{488,59}{616,31}$)

 = (1,05)(0,79)

 = 0,8295