0.12, 0.01, 0.23, 0.28, 0.89, 0.31, 0.64, 0.28, 0.83, 0.93, 0.99, 0.15, 0.33, 0.35, 0.91, 0.41, 0.60, 0.27, 0.75, 0.88, 0.68, 0.49, 0.05, 0.43, 0.95, 0.58, 0.19, 0.36, 0.69, 0.87. (**α=0.025, Test No=3 at position 3rd, 8th, 13th are auto correlated**) **N=30**

S1: Define Hypothesis,

S2: **i=3**, lag/gap **m=5**

S3: Find **M**, **i+(M+1)m ≤ N**

3+(M+1)5 ≤ 30

→ (M+1)5 <= 27

→ (M+1) <= 5.4

→ M <= 4.4 [So, M= max (4, 3, 2…0)]

M= 4

S4: $\hat{\rho}_{im} = \frac{1}{M+1} , \left[\sum_{k=0}^{M} R_{i+k_m} . R_{i+[k+1]m}\right] - 0.25$

$\hat{\rho}_{35} = \frac{1}{4+1} \left[\sum_{k=0}^{4} R_{3+5k} . R_{3+5[k+1]}\right] - 0.25$

$= \frac{1}{5}$ [$R_3 . R_8 + R_8 . R_{13} + R_{13} . R_{18} + R_{18} . R_{23} + R_{23} . R_{28}$]-0.25

$= \frac{1}{5}$ [0.23*0.28 + 0.28*0.33 + 0.33*0.27 + 0.27*0.05 + 0.05*0.36]

$= \frac{1}{5}$ (0.2774) - 0.25

= 0.05548 – 0.25

= -0.19452, **This is the estimator**

S5: $\sigma_{\hat{p}_m} = \frac{\sqrt{13(4)}+7}{12(4+1)} = \frac{\sqrt{52}+7}{60}$ = 0.128

S6: $Z_0 = \frac{\hat{\rho}im}{\sigma_{\hat{p}_m}} = \frac{-0.19452}{0.128}$ = **-1.51**

S7: $\mathbf{Z_{0.025}}$ **=** 1.96

S8: $\mathbf{-Z_{\alpha/2} \leq Z_0 \leq +Z_{\alpha/2}}$

-1.96 ≤ **-1.51** ≤ 1.96**,** H_0 is accepted**.**