(2)
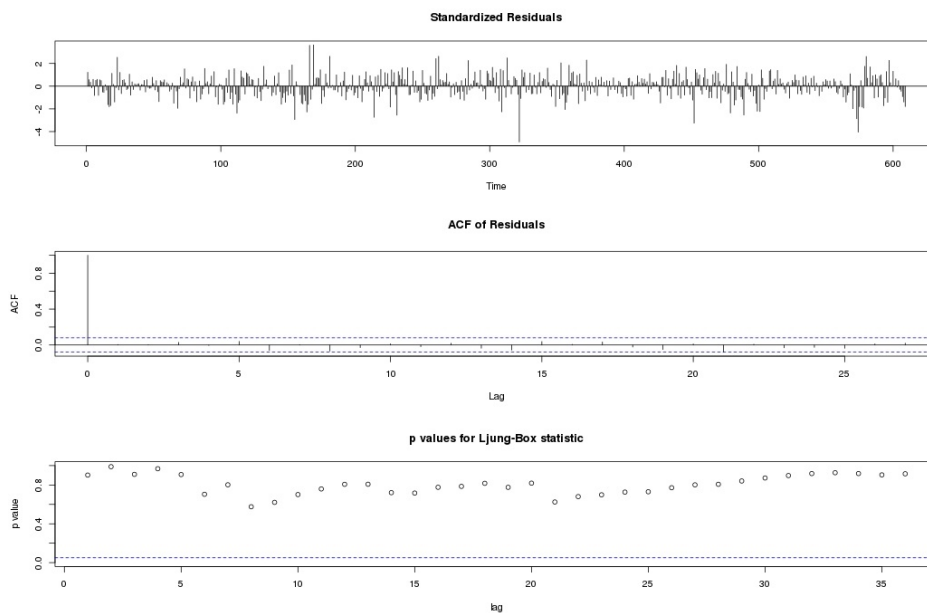(a)For Decile 2, we could not reject the null hypothesis.
For Decile 10, we could reject the null hypothesis.
Since the first P-value=0.1431. the second P-value=3.506e-06.

(b)
 $(1+0.2518*B+0.3866*B\char`\^2)xt=(1+0.3696*B+0.3621*B\char`\^2)at$

(c)
predict values:
 0.0033 0.0147 0.0102 0.0069 0.00952 0.01013 0.0090 0.0090
   0.0095 0.0093 0.0092 0.0093
standard variance:
 0.0471 0.0474 0.0475 0.0475 0.0475 0.0475 0.0475 0.0475
   0.0475 0.0475 0.0475 0.0475

Code:
da=read.table("~/Downloads/time series analysis/mdec12910",header=T)
head(da)
m1=da[,3]
m2=da[,6]
Box.test(m1,lag=12,type='Ljung')
Box.test(m2,lag=12,type='Ljung')
acf(m1,lag=20)
pacf(m1,lag=20)
m3=arima(m1,order=c(2,0,2))
m3
acf(m3$residuals,lag=24)
pacf(m3$residuals,lag=24)
tsdiag(m3,gof=36)
predict(m3,12)