

STATS 326
Applied Time Series
ASSIGNMENT ONE
ANSWER GUIDE

Question One: Cycles

Question Two: Stationary

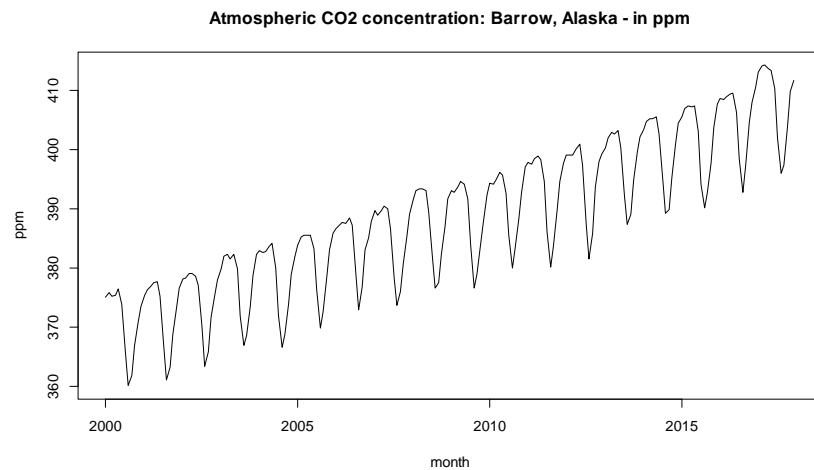
Question Three: Seasonal Component (no Trend or Cycle)

Question Four: Reasonably Linear Trend & Seasonal Component

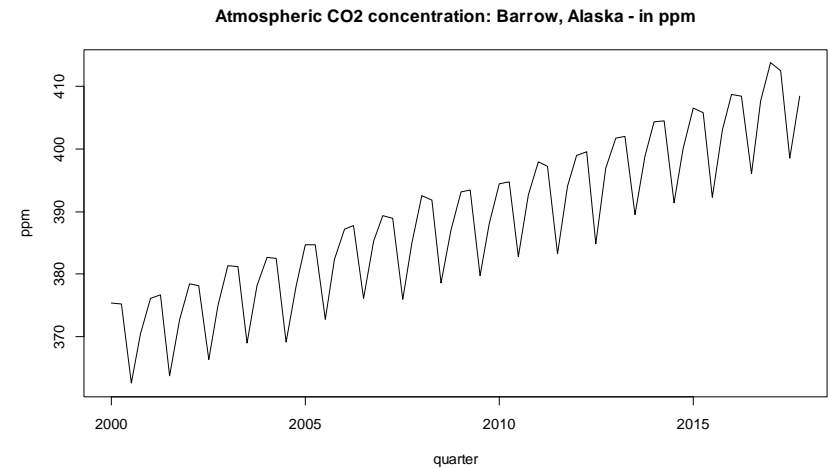
Each of the first 4 questions are worth 20 marks each. Check the marksheet attached to your assignment.

Question 5: Barrow Atmospheric Data

```
> plot(Barrow.ts,xlab="month",ylab="ppm",main="Atmospheric CO2  
concentration: Barrow, Alaska - in ppm")
```



```
> barrow.ts = aggregate(Barrow.ts,nfrequency=4)  
> barrow.ts = barrow.ts/3
```



The series appears to have a reasonably linear trend although there is a much larger seasonal peak in 2017.

There appears to be a seasonal pattern with quarter 1 being the highest quarterly value and quarter 3 being the lowest quarterly value once you allow for the trend, on average.

The range of the CO2 concentration in the atmosphere, is between 375.2133 and 408.4433 parts per million.