Department of Statistics
STATS 326: Applied Time Series
Summer Semester, 2019
Test 1
Total Marks = 100

1. Briefly describe Panel Data. (You should provide an example of a Panel Data set. Do not use an example given in the course notes.)

(10 marks)

2. Briefly, why is dependence on the past so important in Time Series modelling?

(10 marks)

3. Sketch a plot of the autocorrelation function for a series that has a trend and quarterly seasonal component.

(5 marks)

4. What is White Noise and why is it important in Time Series modelling?

(5 marks)

5. What is the main purpose of differencing a Non-stationary Time Series?

(5 marks)

6. Discuss the plots of the Residential Gas Usage in Iowa on page 1 of the Appendix.

(10 marks)

7. Calculate the predictions for January to March 1979 using the Holt-Winters model on page 2 of the Appendix. Calculate the RMSEP statistic for those predictions. (Note: the actual values for January to March 1979 are given at the bottom of page 1 of the Appendix.)

(15 marks)

8. Calculate the predictions for January to March 1979 using the Moving Average Seasonally Adjusted model on pages 3 to 6 of the Appendix. Calculate the RMSEP statistic for those predictions. (Note: the actual values for January to March 1979 are given at the bottom of page 1 of the Appendix.)

(15 marks)

9. Calculate the predictions for January to March 1979 using the Seasonal Trend Lowess Seasonally Adjusted model on page 7 of the Appendix. Calculate the RMSEP statistic for those predictions. (Note: the actual values for January to March 1979 are given at the bottom of page 1 of the Appendix.)

(15 marks)

10. Which model is the best predicting model for January to March 1979? Justify your answer.

(10 marks)