MG2MDCSTA100 – Time Series Methods and their Applications

Duration: 1Hour   Maximum Marks: 35

Students should attempt at least one question from each course outcome to enhance their overall outcome attainability.

Part A
Multiple Choice Questions
Answer All Questions.
Each question carries 2 marks

1. What is the primary characteristic of a time series data set?   [Remember][CO1]
   (a) Data points are not related   (b) Random data
   (c) Data is collected over time   (d) None of these

2. Which of the following is not a time series plot?   [Analyse][CO1]
   (a) Scatter plot   (b) Month plot
   (c) Histogram   (d) Season plot

3. Which of the following is a component of a time series?   [Understand][CO1]
   (a) Trend   (b) Seasonality
   (c) Irregularity   (d) All of the above

4. The component of a time series that reflects long-term growth or decline is known as:
                                                                   [Remember][CO1]
   (a) Seasonal component   (b) Trend component
   (c) Irregular component   (d) Cyclical component

5. Identify the properties of a white noise model.   [Skill][CO2]
   (a) Independent   (b) Identical
   (c) Pattern free   (d) All of the above

6. How would you make a random walk time series stationary?   [Skill][CO2]
   (a) By taking the square of each observation.
   (b) By taking the first difference of the series.
   (c) By adding a constant to each observation.
   (d) By multiplying each observation by a constant.

7. Correlation coefficient is used to determine: [Interest][CO3]
   (a) A specific value of the y-variable given a specific value of the x-variable
   (b) A specific value of the x-variable given a specific value of the y-variable
   (c) The strength of the relationship between the x and y variables
   (d) None of these

8. What is the range of values that the auto correlation coefficient can take?
                                                                   [Interest][CO1, CO3]
   (a) -1 to 0   (b) 0 to 1
   (b) Any real number   (d) -1 to 1

9. Which of the following is the possible cause of auto correlation in the time series data?

      [Interest] [CO1, CO3]

   (a) Seasonality   (b) Trend

   (c) Measurement Error   (d) All of the above

10. Identify the statistical tool for measuring the significance of correlation between a variable and the its lagged values.   [Interest][CO1, CO3]

   (a) PACF   (b) Scatter plot

   (b) Season plot   (d) Month plot

(2 x 10 = 20)

Part B
Short Essay Type questions
*Answer any **3** questions.*
*Each question carries **5** marks.*

11. What are basic assumptions of time series?   [Remember][CO1]

12. Briefly explain different methods of measurement of trend.   [Skill][CO1, CO2]

13. Introduce the term stationary process.   [Skill][CO2]

14. How would you construct a scatter plot?   [Interest][CO3]

15. Comment on auto regressive models.   [Interest][CO1, CO3]

(5 x 3 = 15)