

**STELLA MARIS COLLEGE (AUTONOMOUS) CHENNAI – 600 086**  
**(For candidates admitted during the academic year 2019-20)**  
**SUBJECT CODE: 19BA/AC/BD45**  
**B.B.A. DEGREE END SEMESTER EXAMINATION APRIL 2021**  
**BUSINESS ADMINISTRATION**  
**FOURTH SEMESTER**

**COURSE : ALLIED CORE**

**PAPER : Business Data Analysis**

**TIME : 90 MINUTES**

**MAX. MARKS: 50**

**Section A**

**( 3\*2= 6)**

**Answer all the questions:**

1. What is auto correlation? Discuss its illness in brief
2. Discuss Co-integration in brief
3. Calculate the three yearly moving average of the data given:

Year	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989
Sales (millions of rupees)	3	4	8	6	7	11	9	10	14	12

**Section B**

**Answer any three questions:**

**(3x8 =24)**

4. Closing value of BSE from 6<sup>th</sup> to 17<sup>th</sup> day of the month in the month of January in 2011 is given below:

Days	Date	Days	Sensex
1	6	Thurs	14522
2	7	Fri	14922
3	8	Sat	No trading
4	9	Sun	No Trading
5	10	Mon	15222
6	11	Tue	16000
7	12	Wed	16400
8	13	Thurs	17000
9	14	Fri	No trading
10	15	Sat	No trading
11	16	Sun	No trading
12	17	Mon	18000

Calculate the exponential moving average of Sensex during the above period. The 30 days simple moving average of Sensex can be assumed as 15000. Give the detailed analysis on the basis of your calculations.

5. There is Vehicle data set given in which we have attributes like failure month, labor hour, labor cost, mileage, maintenance cost and state. Now write a full-length code to do missing value treatment and perform following task.
  - A. Import the file
  - B. To call all the libraries used in missing value treatment.
  - C. Apply a function to find the missing data and also find the missing data pattern and pairs.
  - D. Do the imputation and then complete the data
6. Exercise Lubridate: -
  - A. Create x with time zone CEST at a given time point 2014-04-12 11:23, This time point consists of day, month, day and hour.
  - B. Change now the minute of x to 7 and check x in the same line of code
  - C. See which time it would be in London.
  - D. Create another time point y in 2017 of your choice and get the difference of those 2 points.
7. Write the code for the following task
  - A. To calculate the number of days till 17<sup>th</sup> Feb 2021 from birth second also to show the calculation behind the number of days.
  - B. For different date format for the date 23 Nov 1993 in R language
  - C. To create a variable called “mytimepoint” with the given input “1993-11-23 11:23” and to extract the component of mytimepoint.
  - D. To perform the decomposition of inbuilt time series data Air passenger.

### Section C

Answer any one question:

(1x20=20)

8. Apply a logistic regression model on Binary data set. Show how to calculate the predicted value in R studio and Misclassification error. Also show how your model is statistically significant in R studio.
9. Use in built data “lynx” from R studio and perform the following task: -
  - A. Create a ARIMA model with recommended setting. Also select the best ARIMA model and show that model in R studio.
  - B. Create the AR (2) model and also check the equation in R studio.
  - C. Create MA (2) model in R studio.
  - D. Check the stationarity and autocorrelation in the data set.