

Name _____

ESSAY. Write your answer in the space provided or on a separate sheet of paper.

Given the following data on the number of pints of ice cream sold at a local ice cream store for a 6-period time frame:

Period	Demand
1	200
2	245
3	190
4	270
5	280
6	300

- 1) Compute a 3-period moving average for period 4.
- 2) Compute a 3-period moving average for period 6.
- 3) Compute a 3-period moving average for period 7.
- 4) Daily highs in Sacramento for the past week (from least to most recent) were: 95, 102, 101, 96, 95, 90 and 92. Develop a forecast for today using a 3-day moving average.
- 5) Daily highs in Sacramento for the past week (from least to most recent) were: 95, 102, 101, 96, 95, 90 and 92. Develop a forecast for today using a weighted moving average, with a weights of .6, .3, and .1, where the highest weights are applied to the most recent data.
- 6) The following data summarizes the historical demand for a product.

Month	Actual Demand
March	20
April	25
May	40
June	35
July	30
August	45

Use exponential smoothing with $\alpha = .2$ and a smoothed forecast for July of 32 to determine August and September's smoothed forecasts.

- 7) If the forecast is 33 and the actual value is 44, then the error this period is _____.

8) Given the following data, compute the MAD for the forecast.

Year	Demand	Forecast
2001	16	18
2002	20	19
2003	18	24

9) The following sales data are available for 2003–2008.

Year	Demand
2003	7
2004	12
2005	14
2006	20
2007	16
2008	25

Determine a 4-year weighted moving average forecast for 2009, where weights are $W_1 = .1$, $W_2 = .2$, $W_3 = .2$ and $W_4 = .5$.

Recent past demand for product ZXT is given in the following table.

Month	Actual Demand
February	20
March	22
April	33
May	35
June	31
July	48
August	41

10) Determine the forecasted demand for April and May based on adjusted exponential smoothing with $\alpha = .2$, $\beta = .3$, a February forecast of 20, and $T=0$.

Robert has the following accounts on money spent on gambling and winnings:

Money Spent	Money Won
1000	2500
1200	4000
1800	4500
2000	4600
2500	5000
2800	4800
3500	5600
4000	6000
4200	5800

11) Develop a regression equation that relates the money Robert spends and the money he wins.

The following data summarizes the historical demand for a product:

Month	Actual Demand
March	20
April	25
May	40
June	35
July	30
August	45

- 12) Use a four-period moving average to determine the forecasted demand for July, August, and September.
- 13) If the forecasted demand for June, July, and August is 32, 38 and 42, respectively, what is MAD?
- 14) If the forecasted demand for June, July, and August is 32, 38 and 42, respectively, what is MSE?
- 15) If the forecasted demand for June, July, and August is 32, 38 and 42, respectively, what is MAPD?