Q1)

The following time series shows the sales of a particular product over the past 12 months.

Month	Sales	Month	Sales
1	105	7	145
2	135	8	140
3	120	9	100
4	105	10	80
5	90	11	100
6	120	12	110

a. Construct a time series plot.
b. Use alpha=0.3 to compute the exponential smoothing forecasts for the time series, plot it and using this forecast the values
c. Use a smoothing constant of alpha=0.5 to compute the exponential smoothing forecasts, plot it and using this forecast the values
d. Does a smoothing constant of .3 or .5 will provide more accurate forecast.
e. What is the forecast for the next month?

Q2)

The values of Alabama building contracts (in $ millions) for a 12-month period follow.

240 350 230 260 280 320 220 310 240 310 240 230

a. Construct a time series plot.
b. Apply three month moving average smoothing technique, plot it and using this forecast the values
c. Use the exponential smoothing technique with smoothing constant alpha=0.2, plot it and using this forecast the values
d. Compare the three-month moving average approach with the exponential smoothing forecast using alpha=0.2.
e. Which one will provide more accurate forecasts?
f. What is the forecast for the next month?

Q3)

For the Hawkins Company, the monthly percentages of all shipments received on time over the past 12 months are 80, 82, 84, 83, 83, 84, 85, 84, 82, 83, 84, and 83.

a. Construct a time series plot.

b. Compare the three-month moving average approach with the exponential smoothing approach for alpha=0.2 Which provides more accurate forecasts

c. What is the forecast for next month?

Q4)

Because of high tuition costs at state and private universities, enrollments at community colleges have increased dramatically in recent years. The following data show the enrollment (in thousands) for Jefferson Community College from 2004 to 2012.

Year	Period (t)	Enrollment (1000s)
2004	1	6.5
2005	2	8.1
2006	3	8.4
2007	4	10.2
2008	5	12.5
2009	6	13.3
2010	7	13.7
2011	8	17.2
2012	9	18.1

a. Construct a time series plot.

b. Develop the linear trend equation for this time series.

c. Forecast the Enrollment for the year 2013.

d. Use appropriate smoothing technique and justify which technique will provide more accurate forecasts