Case Study 7
Bug Off Chemical Company

BugOff Chemical Company is a manufacturer of environmentally safe pesticides that break down rapidly to harmless compounds. The leading product is BugaCider. BugOff also supplies other firms with a technical based used in formulating a variety of specialty chemical pesticides. The following dada apply to the number of bottles of BugaCider sold.

Quarters					
Year	Winter	Spring	Summer	Fall	Total
2004	18	80	30	22	150
2005	24	105	54	27	210
2006	33	141	48	38	260
2007	40	150	75	45	310
2008	35	180	55	50	320
2009	48	205	70	57	380

The following seasonal indexes have been determined from the above data: Winter = 51.1; Spring = 214.3; Summer = 76.6; Fall = 58.0

1. Deseasonalized sales values for any given quarter may be found by dividing actual sales by the seasonal index. Determine, for each quarter, the deseasonalized BugaCider sales values.

2. Determine the regression trend line for annual BugaCider sales. Use your regression line to predict sales for (a) 2010, (b) 2014, (c) 2019.

3. Using your above forecast for 2010 sales, apply the seasonal indexes from to make BugaCider sales forecasts for each quarter in 2010.

4. An alternative procedure is to use seasonal exponential smoothing. Determine BugOff's forecast BugaCider quarterly sales for 2010 using α= 0.4, γ = 0.4, and β = 0.4.

5. Compare your answers to questions 3 and 4. Which procedure do you prefer? Explain.