1. The following table shows the actual sales of upholstered chairs for a furniture manufacturer and the forecasts made for each of the last 8 months. Calculate tracking signal, MSE, MAD, MSFE and MAPE for this product. Interpret you results for the accuracy of forecast.

Month, t	Demand, D_t	Forecast, F_t
1	200	225
2	240	220
3	300	285
4	270	290
5	230	250
6	260	240
7	210	250
8	275	240
		Total

2. The supply chain manager seeks a better way to forecast the demand for door hinges and believes that the demand is related to advertising expenditures. The following are sales and advertising data for the past 5 months:

Month	Sales (Thousands of Units)	Advertising (Thousands of $)
1	264	2.5
2	116	1.3
3	165	1.4
4	101	1.0
5	209	2.0

The company will spend $1,750 next month on advertising for the product. Use linear regression to develop an equation and a forecast for this product. Also calculate the coefficient of correlation and coefficient of determination for this product and interpret your findings.

3. Medanalysis, Inc., provides medical laboratory services to patients of Health Providers, a group of 10 family practice doctors associated with a new health maintenance program. Managers are interested in forecasting the number of blood analysis requests per week. Recent publicity about the damaging effects of cholesterol on the heart has caused a national increase in requests for standard blood tests. The arrivals over the last 16 weeks are given in Table below. What is the forecasted demand for the next three periods?

Week	Arrivals	Week	Arrivals
1	28	9	61
2	27	10	39
3	44	11	55
4	37	12	54
5	35	13	52
6	53	14	60
7	38	15	60
8	57	16	75

4. The Polish General's Pizza Parlor is a small restaurant catering to patrons with a taste for European pizza. One of its specialties is Polish Prize pizza. The manager must forecast weekly demand for these special pizzas so that he can order pizza shells weekly. Recently, demand has been as follows:

Week	Pizzas	Week	Pizzas
June 2	50	June 23	56
June 9	65	June 30	55
June 16	52	July 7	60

a. Forecast the demand for pizza for June 23 to July 14 by using the simple moving average method with n = 3. Then, repeat the forecast by using the weighted moving average method with n = 3 and weights of 0.50, 0.30, and 0.20, with 0.50 applying to the most recent demand.
b. Forecast demand with exponential smoothing method with alpha of 0.8 for June 23 to July 14.
c. Calculate the MAD for each method.