In oil and gas pipelines and offshore structure, inhibitors have been considered to be the first choice to reduce corrosion rate. There are many corrosion inhibitor compositions available in the market. To produce the best corrosion inhibitor requires many experimental data which is not efficient. These experiments used response surface methodology (RSM) to select corrosion inhibitor compositions. The experiments investigated effects of corrosion inhibition on corrosion rate of low carbon steel in 3% NaCl solution with different concentrations of selected main inhibitor compositions which are ethyl acetate (EA), ethylene glycol (EG) and sodium benzoate (SB). Corrosion rate were calculated using linear polarization resistance (LPR). All of the experiments were set in natural conditions at pH 7. MINITAB® version 15 was used for data analysis. It is shown that a quadratic model is a representative model can predict best corrosion inhibitor composition comprehensibly.