Answers for Question 4:

a)All the below values when alpha is taken as 0.1:

Testing Accuracy:97.93

Confusion Matrix:
True_Positive :144
False_Positive :16
False_Negative : 7
True_Negative :948

Precision:
0.9

Recall:
0.9536423841059603

F-Score:
0.9260450160771704

b)#Training and Testing accuracy graphs variation with respect to different values of alpha:

The selection of α values are 2 **i where i = −5, · · · , 0.

In the above plot the accuracy for training is nearly 100 where as for testing it's greater than 98 and it maximizes at 0.5 and it's starts to decrease slightly from there.

#Training and Testing F-Score accuracy variation with respect to different values of alpha:

Both plots are almost similar and the training accuracy is almost constant where as that's nearly 100 where as, when we compared to testing accuracy this accuracy maximizes at 0.5 if we alter around that we may get very high testing accuracy.