1) What is the optimal value of alpha for ridge and lasso regression? What will be the changes in the model if you choose double the value of alpha for both ridge and lasso? What will be the most important predictor variables after the change is implemented?

In the case of ridge regression: - from graph between negative mean absolute error and alpha we can say Alpha increases as error term decreases. But train error increases with increase in the value of Alpha. With Alpha=2, test error is minimal so 2 is the optimal value of alpha in Ridge regression.
For lasso regression: with increase in the value of alpha the model penalizes more and makes most of the coefficient value zero. Initially it came as 0.4 in negative mean absolute error and alpha.
When we double the value of alpha for ridge regression we get more error for both test and train error. Similarly, with increase in the value of alpha for lasso model penalizes more our model and more coefficient of the variable will have reduced to zero, when we increase the value of our r2 square also decreases.

1. MSZoning_FV
2. MSZoning_RL
3. Neighborhood_Crawfor
4. MSZoning_RH
5. MSZoning_RM
6. SaleCondition_Partial
7. Neighborhood_StoneBr
8. GrLivArea
9. SaleCondition_Normal
10. Exterior1st_BrkFace

The most important variable after the changes has been implemented for lasso regression are as follows: - 1. GrLivArea
2. OverallQual

2) You have determined the optimal value of lambda for ridge and lasso regression during the assignment. Now, which one will you choose to apply and why?
Lasso regression I would choose because it helps in feature elimination and it is more robust.

3) After building the model, you realized that the five most important predictor variables in the lasso model are not available in the incoming data. You will now have to create another model excluding the five most important predictor variables. Which are the five most important predictor variables now?
Those 5 most important predictor variables that will be excluded are: -
1. GrLivArea
2. OverallQual

3. OverallCond
4. TotalBsmtSF
5. GarageArea

4) How can you make sure that a model is robust and generalizable? What are the implications of the same for the accuracy of the model and why?

Simple model is Robust and generalizable (though there is reduction in accuracy) as it's easy to understand using Bias-Variance trade-off.

The simpler the model the more the bias but less variance and more generalizable. Its implication in terms of accuracy is that a robust and generalizable model will perform equally well on both training and test data i.e. the accuracy does not change much for training and test data.

Bias: Bias is error in model, when the model is weak to learn from the data. High bias means model is unable to learn details in the data. Model performs poor on training and testing data.

Variance: Variance is error in model, when model tries to over learn from the data. High variance means model performs exceptionally well on training data as it has very well trained on this of data but performs very poor on testing data as it was unseen data for the model.

It is important to have balance in Bias and Variance to avoid overfitting and under-fitting of data.