Question 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?
Ans) Ans: Optimal Value of alpha for Ridge Regression is 6.0 and Optimal Value of alpha for Lasso Regression is 0.0001. Since the optimal value for alpha is what we found, if we double the value of alpha we will get a lasso/ridge model which is not optimal i.e. the test/training R2_score/accuracy of the model will either slightly decrease or nearly remain the same. As my Experiment in my model, the r2_score of training data decreases slightly while the test r2_score nearly remains the same. Most important predictor variables doesn't change even if after change is implemented for both Ridge and Lasso Regression

Question 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?
Ans) I will choose to apply lasso model because even though both the model are giving near similar accuracy/r2_score, lasso regression also does feature selection due to which the model complexity decreases as the model removes insignificant columns(it makes coefficent of those columns 0) since we know the model is better if the model is simple and robost and not overly complex.

Question 3:After building the model, you realised 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?

Ans) After dropping the top 5 important variables, the following are the top 5 important variables for the new model.

- -1stFlrSF
- -LotArea
- -MasVnrArea
- -Exterior2nd_Brk Cmn
- -Exterior2nd_Plywood

Question 4:How can you make sure that a model is robust and generalisable? What are the implications of the same for the accuracy of the model and why?
Ans)To make the Model robust and generalisable, we can use Regularization Techniques, use Cross-Validation or/and tune the hyperparameters.