Q1) **What are assumptions of Linear Regression?**

Linear regression: Linearity of residuals, Independence of residuals, Normal distribution of residuals, Equal variance of residuals.

Q2) **How to learn the parameter**

Minimize the cost function

Q3) **How to minimize cost function**

Gradient Descent

\*\*\*\*Q4) **regularization techniques What’s the difference between L1 and L2 regularization?**  
L1 (lasso): can shrink certain coef to zero, thus performing feature selection

* L2 (ridge): shrink all coef with the same proportion; almost always outperforms L1
* combined (Elastic Net):

Q5) **What are the error metrics in Linear Regression?**

RMSE

MSE

MAPE

Q6) **Difference between R2 and Adj R2?**

Q7) **Loss function vs cost function?**

Q8) **Why L1 regularizations cause parameter sparsity whereas L2 regularization does not**?

Q9) **Why do we square the residuals instead of using modulus**?

Q10) **Linear regression**?

Q11**) What is the difference between gradient and slope, differentiation, and integration**?

Q12) **What is the p- value in OLS regression?**

Q13) **What is AIC information and its significance?**

Q14) **Stepwise Regression in Linear Regression? types?**

Q15) **What is the need to remove multicollinearity?**

Q16) **How does the value of R squared and adjusted R Squared error change when you add new variable in your model?**

Q17) **Can adjR2 have -ve values? in what case it will have?**

Q18) **Drawbacks of a linear model?**

Q19) **Is mean square error a bad measure of model performance?**

Q20) **What is Gradient Descent? What is Learning Rate and Why we need to reduce or increase?**

Q21) **VIF – Variance Inflation Factor – Explain**.

Q22) **Residual plot? Use?**