Q1 to Q11-----

1) A
2) A
3) A
4) A
5) A
6) B
7) D
8) C
9) A
10) A
11) D

Q12. A, B

Q13. Explain the term Regularization.

It helps to sort the overfitting problem by restricting the degrees of freedom of a given equation that is simply reducing the number of degrees of polynomial function by reducing their corresponding weights.

In linear regression we don't want huge weights or coefficients as a small change in weight can make a large difference for the dependent variable, so regularization constraints the weights of such features to avoid overfitting.

To regularize the model, shrinkage penalty is added to the cost function.

Types of regularization in regression.

1) LASSO (Least absolute shrinkage and selection operator)/(L1 Norm)-
   It penalizes the model based on the sum of squares of the magnitude of the coefficients. The regularization term is given by,
   Regularization = $\lambda * \sum |{}^\beta j*|$
   Where λ is the shrinkage factor

2) RIDGE (L2 Norm)-
   Regularization term is given by,
   Regularization = $\lambda * |{}^\beta j^2|$
   Where λ is shrinkage factor

3) ELASTICNET

Q14. Which algorithms are used for regularization?

Types of regularization Algorithms used in regression.

1) LASSO (Least absolute shrinkage and selection operator)/(L1 Norm)-
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   Regularization = $\lambda * |\beta j^2|$
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3) ELASTIC-NET—
   It is a regularized regression method that linearly combines the L1 and L2 penalties of the LASSO and RIDGE methods respectively.

Q15.Explain the term error in linear regression equation.

An error term is the margin of error within a statistical model, it refers to the sum of the deviations within the regression line, which provides an explanation for the difference between the theoretical value of the model and the actual observed results.

An error term technically means that the model is not completely accurate and results in differing output in real-time work applications.

The multiple linear regression function is give by,

Y =a X + b P + e

Where:

a, b = constants

X, P = Independent Variables

e = error term