

ANSWERS OF :

MACHINE LEARNING

1. (A)
2. (B)
3. (B)
4. (B)
5. (A)
6. (D)
7. (D)
8. (D)
9. (A)
10. (B)
11. (B)
12. (A,B)
13. Regularization is a technique to reduce the error by fitting a function appropriately on a given training set and avoid overfitting. Avoiding overfitting is one of the major aspects of training the machine learning models. This happens generally because the model is trying too hard to capture the noise in the training dataset. Noise means the data points that don't really represent the true properties of data, but random chance. Learning such data points, makes the model more flexible and at the risk of overfitting.

This is a form of regression, that constraint or regularizes the coefficient estimates towards zero.

14. Algorithms used for regularization:
 - a. Lasso (L1)
 - b. Ridge(L2)
 - c. Dropout
 - d. Early stopping
 - e. Data augmentation
15. With the help of regression equation, perfect prediction is practically impossible. For example, the revenue for the year from gasoline sales (Y) based on automobile registration (X) as of a certain date would no doubt be approximated fairly closely, but prediction may not be exact neither to the nearest rupee nor probably to the nearest '000 rupees. What is needed then, is a measure which would indicate how precise the prediction of Y is, based on X or conversely, how inaccurate the prediction might be. The measure is called the *standard error of estimates*.

The *standard error of estimate* measures the accuracy of the estimated figures. The smaller the value of standard error of estimate, the closer will be the dots to the regression line and the better the estimates based on the equation for the line. If *standard error of estimate* is zero, then there is no variation about the line and the correlation will be perfect. Thus, with the help of *standard error of estimate*, it is possible for us to ascertain how good and representative the regression line is.