

## MACHINE LEARNING

In Q1 to Q11, only one option is correct, choose the correct option:

1. Which of the following methods do we use to find the best fit line for data in Linear Regression?  
A) **Least Square Error** B) Maximum Likelihood  
C) Logarithmic Loss D) Both A and B

**Answer:- Least Square Error**

2. Which of the following statement is true about outliers in linear regression?  
A) **Linear regression is sensitive to outliers** B) linear regression is not sensitive to outliers  
C) Can't say D) none of these

**Answer:- Linear regression is sensitive to outliers**

3. A line falls from left to right if a slope is \_\_\_\_\_?  
A) Positive B) **Negative**  
C) Zero D) Undefined

**Answer:- Negative**

4. Which of the following will have symmetric relation between dependent variable and independent variable?  
A) **Regression** B) Correlation  
C) Both of them D) None of these

**Answer:- Regression**

5. Which of the following is the reason for over fitting condition?  
A) High bias and high variance B) Low bias and low variance  
C) Low bias and high variance D) **none of these**

**Answer:- none of these**

6. If output involves label then that model is called as:  
A) Descriptive model B) **Predictive model**  
C) Reinforcement learning D) All of the above

**Answer:- Predictive model**

7. Lasso and Ridge regression techniques belong to \_\_\_\_\_?  
A) Cross validation B) Removing outliers  
C) SMOTE D) **Regularization**

**Answer:- Regularization**

8. To overcome with imbalance dataset which technique can be used?  
A) Cross validation B) Regularization  
C) Kernel D) **SMOTE**

**Answer:- SMOTE**

9. The AUC Receiver Operator Characteristic (AUCROC) curve is an evaluation metric for binary classification problems. It uses \_\_\_\_\_ to make graph?

**MACHINE LEARNING**

- A) **TPR and FPR**                      B) Sensitivity and precision  
C) Sensitivity and Specificity        D) Recall and precision  
**Answer:- TPR and FPR**

10. In AUC Receiver Operator Characteristic (AUCROC) curve for the better model area under the curve should be less.

- A) True                                      **B) False**

**Answer: False**

11. Pick the feature extraction from below:

- A) Construction bag of words from a email  
**B) Apply PCA to project high dimensional data**  
C) Removing stop words  
D) Forward selection

**Answer: Apply PCA to project high dimensional data**

**In Q12, more than one options are correct, choose all the correct options:**

12. Which of the following is true about Normal Equation used to compute the coefficient of the Linear Regression?

- A) We don't have to choose the learning rate.  
**B) It becomes slow when number of features is very large.**  
C) We need to iterate.  
D) It does not make use of dependent variable.

**Answer: It becomes slow when number of features is very large**

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### **MACHINE LEARNING**

**Q13 and Q15 are subjective answer type questions, Answer them briefly.**

13. Explain the term regularization?

This is a form of regression, that constrains/ regularizes or shrinks the coefficient estimates towards zero. In other words, this technique discourages learning a more complex or flexible model, so as to avoid the risk of overfitting.

14. Which particular algorithms are used for regularization?

There are three main regularization techniques, namely: Ridge Regression (L2 Norm) Lasso (L1 Norm) Dropout

15. Explain the term error present in linear regression equation?

It is often said that the error term in a regression equation represents the effect of the variables that were omitted from the equation. This is unsatisfactory, even in simple contexts, as the following discussion should indicate. Suppose subjects are IID, and all variables are jointly normal with expectation 0. Suppose the explanatory variables have variance 1. The explanatory variables may be correlated amongst themselves, but anyp of them have a non-singularp-dimensional distribution.

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