Machine Learning Worksheet

1. Which of the following methods do we use to find the best fit line for data in Linear Regression?
Answer. (A) Least Square Error

2. Which of the following statement is true about outliers in linear regression?
Answer. (A) Linear regression is sensitive to outliers

3. A line falls from left to right if a slope is _____?
Answer. (B) Negative

4. Which of the following will have symmetric relation between dependent variable and independent variable?
Answer. (A) Regression

5. Which of the following is the reason for over fitting condition?
Answer. (D) None of these.

6. If output involves label then that model is called as:
Answer. (B) Predictive model

7. Lasso and Ridge regression techniques belong to _____?
Answer. (D) Regularisation

8. To overcome with imbalance dataset which technique can be used?
Answer. (D) SMOTE

9. The AUC Receiver Operator Characteristic (AUCROC) curve is an evaluation metric for binary classification problems. It uses _____ to make graph?
Answer. (B) Sensitivity and precision

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

11. Pick the feature extraction from below:
Answer. (B) Apply PCA to project high dimensional data

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

Answer. Correct options are as follows:
(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

13. Explain the term regularisation?
Answer. Generally model make the self assumption and run regression on the basis of that. There could be high bias or low bias and high or low variance at the same time. If this is the case then it is called underfitting and overfitting of the model.
Regularisation is the algorithm to reduce the bias or variance if there is any in the model. We can use LASSO, RIDGE, and ELASTIC NET method to regularise the model.

14. Which particular algorithms are used for regularisation?
Answer. Regularisation is the algorithm to reduce the bias or variance if there is any in the model. We can use LASSO, RIDGE, and ELASTIC NET method to regularise the model. It will internally remove the variables as per the significance on y-variable.
It is done on the basis of alpha parameter value.
Tune value of alpha are provided by the algorithm and not high because if we provide high alpha value then it will remove the coefficients too.

Syntax:
```
From sklearn.linear_model import Lasso, Ridge, ElasticNet
Ls = Lasso(alpha = 0.001)
```

15. Explain the term error present in linear regression equation?
Answer. The error term describes a statistical model's margin of error, or the sum of deviations within the regression line. It explains why the model's outcomes differ from the actual results.