MACHINE LEARNING

(WORKSHEET-1 ANSWERKEY)

Q-1) = (A)

Q-2) = (A)

Q-3) = (B)

Q-4) = (B)

Q-5) = (C)

Q-6) = (B)

Q-7) = (D)

Q-8) = (A)

Q-9) = (A)

Q-10) = (A)

Q-11) = (D)

In Q-12 more than one options is correct, choose all the correct options:

Q-12) = (B,D)

In Q-13 and Q-15 are subjective answer type questions, Answer them briefly:

Q-13) = ans=) Regularization refers to techniques that are used to calibrate machine learning models in order to minimize the adjusted loss function and prevent overfitting or underfitting. Regularization is

one of the most important concepts of machine learning. It is a technique to prevent the model from overfitting by adding extra information to it. Sometimes the machine learning model performs well with the training data but does not perform well with testing data. It means the model is not able to predict the output when deals with unseen data by introducing noise in the output, and hence the model is called overfitted. This problem can be deal with the help of a regularization technique.

This technique can be used in such a way that it will allow to maintain all variables or features in the models by reducing the magnitude of the variables. Hence, it maintains accuracy as well as a generalization of the model.

Q=14) = ANS=) L1 and L2 are most common types of regularization. Regularization works on the premise that smaller weights lead to simpler models which in results helps in avoiding overfitting. So to obtain a smaller weight matrix, these techniques add a 'regularization term' along with the loss to obtain the cost function. A regression model that uses L1 regularization technique is called lasso regression and model which uses L2 is called ridge regression. The key difference between these two is the penalty term.

Q=15) = ans=) Regression analysis is a statistical technique that can test the hypothesis that a variable is dependent upon one or more other variables. Further regression analysis can provide an estimate of the magnitude of the impact of a change in one course, is all important in predicting future values.

Regression analysis is based upon a function relationship among variables and further, assumes that the relationship is linear. This

linearity assumption is required because, for the most part the theortical statistical properties of non-linear estimation are not well worked out yet by the mathematicians and econometricians. Linear regression is a form of analysis that relates to current trends experienced by a particular security or index by providing a relationship between a dependent and independent variables, such as the price of a security and the passage of time, resulting in a trend line that can be used as a predictive model.