Questions asked in ML Engineer Interview

1Q. In Mumbai City, in month May How many days would you expect the temperature range will be 39°C and 42°C?
Given data: - In May Month Mumbai city average temp is 36°C & the SD is 3°C. Let's assume the temp data is symmetrical.

(A)3 (B)4 (C)7 (D)14

2Q. Let's Assume you are in a senior position of a company making a decision to Acquire company A or B.
company A which has $ 21 Million Value,
company B which has $ 15 Million Value.
Deal price is same say $ 15 Million for company A & B.
However, the problem is that if you acquire company A there is 90% chance that the Government will challenge the acquisition (some Taxes irregularity as challenged) and a 60% chance the government will win.
If Government win a value of A drops to $ 14 Million because of Legal Fees and Pending Taxes.
Even If government losses, the value drops to $ 19 Million because of Legal fees.
Acquiring which company is the best deal?

(A)Company A
(B)Company B

3Q. In cases where the data is highly imbalanced, it might be a good option to force

(A)oversampling of the majority class.
(B Under sampling of the majority class.

4Q. In cases where the data is highly imbalanced, It is good idea to balance it -

(A)so that the model is not biased towards the majority class.
(B) so that the model is not biased towards the minority class.

5Q. In cases where the data is highly imbalanced, the best approach is:-

(A)Balance the whole data set and make it 50:50 ratios both class.
(B) Under sampling approach is good if we have small dataset.
(C)Balance the Training Dataset.

6Q. In a court trial A judge has given punishment to an innocent person. As per the hypothesis testing point of view what is the error of type: -
(A) No error.
(B)Type I error
(C)Type II error
(D)Type III error

7Q. In the test of hypothesis
Statement I:- A type I error is the decision to reject Ho when it is in fact true.
Statement II:- A type II error is the decision not to reject Ho when it is in fact not true.

(A)Both statement is true.
(B)Both statement is False.
(c) Statement I is true
(D)Statement II is true.

8Q. In hypothesis testing
If Ha has the form $\mu \neq \mu 0$ the test is called a two-tailed test.
Statement is :-

(A) True
(B) False

9Q. In hypothesis testing
Statement I
If Ha has the form $\mu<\mu_0$ the test is called a left-tailed test.
Statement II
If Ha has the form $\mu>\mu_0$ the test is called a right-tailed test
(A)Statement I is True
(B)Statement II is True
(c) Both statements are True
(D)Both statements are False

10.Q. The recipe for a bakery item is designed to result in a product that contains 8 grams of fat per serving. The quality control department samples the product periodically to insure that the production process is working as designed. State the relevant null and alternative hypotheses.
Statement I:- Null hypothesis $H_0:\mu=8.0$
Statement II:-Alternative hypothesis $H_a:\mu=8.0$

(A) Statement I true
(B) Statement II true
(C) Both statement true
(D) Both statement False

11.Q .The main goal of an SVM is to define

(I) A hyperplane that separates the points in two different classes.
(II) A threshold probability value that separates the points in two different classes.

(A)Statement I is true

(B)Statement II is true

12.Q. The Quality with an R2 score it that, more the number of variables in independent variables , R2 has a tendency to be
……. even by a miniscule (very small) amount. However, the new added variable may or may not be significant.

(A)Decrease.

(B) Constant or increase

(C)Constant (neither increase or Decrease)

(D)Increase

13.Q. *Durbin-Watson* value (As found in the OLS) suppose its value is 2.084 and we conclude that the data doesn't have: -

(A)high Skewness.

(B)high kurtosis.

(C)autocorrelation.

14.Q. Which statement is True:-

(I)Boosting algorithms attribute more weight to the observations it misclassified.

(II) Voting algorithms attribute more weight to the observations it misclassified.

(III) Bagging algorithms attribute more weight to the observations it misclassified.

(A)Statement I true

(B)Statement II true

(c) Statement III true

15.Q. Overfitting is a situation when the model predicts high Bias and Low variance.

(A)Statement is True

(B)Statement is False.

16.Q. After implementation PCA, It will encode your features into principal components. principal components necessarily map one-to-one with features. They are original representation of the dataset after completion of PCA.

(A)True statement about PCA.

(B)False statement about PCA.

17.Q. Random Forests is a Machine Learning algorithm that tackles one of the biggest problems with Decision Trees:-

(A) variance and Bias.

(B)Variance.

(C)Bias.

(D)Under fitting solution.

Q 18 At a local high school, GPA's are normally distributed with a mean of 2.9 and standard deviation of 0.6. What percentage of students at the high school have a GPA between 2.3 and 3.5?

(A)68%
(B)99.7%
(C)95%
(D)84%

Q19 At a local high school, GPA's are normally distributed with a mean of 2.9 and standard deviation of 0.6. What is the GPA of the highest 2.5% of the students?
(A)4.1
(B)4.1 or higher
(C)4.7
(D)4.5 or higher

Q 20 The mean life of a tire is 30,000 km. The standard deviation is 2000 km.
Then, 68% of all tires will have a life between _____ km and _____ km.

(A)28,000 km and 32,000 km.
(B)24,000 km and 34,000 km.
(C)26,000 km and 34,000 km.
(D)27,000 km and 31,000 km.

Q.21 Variable A is normally distributed with $\mu = 12.00$ and $\sigma = 3.11$. What is the probability that a randomly selected case will have a score of less than 15?

(A)0.72
(B)0.29
(C)0.87
(D)0.12

Q.22 The shelf life of a particular dairy product is normally distributed with a mean of 12 days and a standard deviation of 3 days.
About what percent of the products last between 12 and 15 days?
(A)68%
(B)34%
(C)16%
(D)2.5%

Q.23 A machine produces electrical components.
99.7% of the components have lengths between 1.176 cm and 1.224 cm.
Assuming this data is normally distributed, what are the mean and standard deviation?

(A)Mean = 1.210 cm
S.D. = 0.008 cm
(B)Mean = 1.200 cm
S.D. = 0.004 cm
(C)Mean = 1.190 cm
S.D. = 0.008 cm
(D)Mean = 1.200 cm
S.D. = 0.008 cm

Q.24 Students pass a test if they score 50% or more.
The marks of a large number of students were sampled and the mean and standard deviation were calculated as 42% and 8% respectively.
Assuming this data is normally distributed, what percentage of students pass the test?

(A)5
(B)16
(C)24
(D)32

Q25.What can you conclude about a Pearson's r that is bigger than 1?

(A)The correlation is very high.

(B)This is impossible. Correlations are always between -1 and 1.

(C)There is a non-linear relationship between X and Y.

(D)This is impossible. Correlations are always between 0 and 1.

26. 26 . Find the correct answers.

(I)when a boxplot is short it implies that much of the data points are dis-similar.

(II)When the boxplot is tall it implies that much of the data points are quite similar.

(III)When whiskers are very long that means the data has high standard deviation & variance.

(A)Statement I is true.

(B)Statement II is true.

(C)Statement III is true.

(D)A Statement II and III are True

(27)The width of a confidence interval increases when the margin of error increases, which happens when the:

- (I)Significance level increases;
- (II)Sample size decreases;
- (III)Sample variance increases.

(A)statement I is true

(B)Statement II is true

(C)Statement III is true.

(D)All statements are True

(28) (I)BIAS: error rate either on the training or testing.

(II)High Bias related with overfitting.

(A)Statement I is true.

(B)Statement II is true.

(c)Both statements are true.

(D)Both statements are False.

(29)

(I)Bias:- How much worse the algorithm does on the validation or test than the training set.

(II) Overfitting has high variance.

(III)Under fitting has low Bias.

(A)All statements are True.

(B)All statements are False.

(C)Statements I and II are True.

(D)Statements II and III are False.

(30)Regularization is a technique which is used to solve under fitting problem of the ML models.

(A)True

(B) False

(31) Gradient decent , Ridge , Lasso are the regularization algorithm.

(A)True

(B)False

(31) Learning rate is a hyper-parameter that controls how much we are adjusting the weights of our algorithm with respect to loss gradient.

(A)True

(B)False

(32) How is a confidence interval related to a point estimate?
(A)Whenever we can't calculate an interval, the confidence interval is equal to the point estimate.
(B)The point estimate is the starting point of the interval.
(C)The point estimate is the midpoint of the interval.
(D)The point estimate is the ending point of the interval.

(33) Which of the following algorithms do we use for Variable Selection?
A. LASSO
B. Ridge
C. Both
D. None of these

(34) Which of the following option is true?

A. Linear Regression error values has to be normally distributed but in case of Logistic Regression it is not the Case.
B. Logistic Regression errors values has to be normally distributed but in case of Linear Regression it is not the case
C. Both Linear Regression and Logistic Regression error values have to be normally distributed
D. Both Linear Regression and Logistic Regression error values have not to be normally distributed

(35)…… is not a machine learning algorithm
(A)SVR
(B)SVC
(C)SVG
(D)SVM

(36)The Bayes rule can be used best in……
(A)Solving queries
(B)Dimensionality Reduction.
(c)Decreasing complexity
(D)Answering Probabilistic query

(37) A feature F1 can take certain value: A, B, C, D, E, & F and represents grade of students from a college. Here feature type is_____

(A)Ordinal

(B)Nominal

(C)Categorical

(D)None of the above.

(38) If machine learning model output involves target variable then that model is called as_____

A. predictive model
B. descriptive model
C. reinforcement learning
D. All of above

(39) What does dimensionality reduction reduce?

(A) collinearity
(B) stochastic
(C) entropy
(D) performance

(40) The effectiveness of an SVM depends upon_____

(A) No. of iteration.
(B) selection of kernel

(C) soft margin parameter
(D) All of the above