

1.Regarding bias and variance, which of the following statements are true?

- A. Models which overfit have a high bias.
- B. Models which overfit have a low bias.
- C. Models which underfit have a high variance.
- D. None of the mentioned

ANS: ~~A~~ D

2.In a particular pain clinic. 10% of patients are prescribed narcotic pain killers. Overall, five percent of the clinic's patients are addicted to narcotics (including pain killers and illegal substances). Out of all the people prescribed pain pills, 8% are addicts. If a patient is an addict, what is the probability that they will be prescribed pain pills?

- a) 0.16
- b)0.008
- c) 0.08
- 4) 0.01

ANS: A

3. Choose the correct statement/statements:

\$1: The correlation matrix is a square matrix that contains the Pearson product-moment correlation coefficients (often abbreviated as Pearson's r), which measure the linear dependence between pairs of features.

\$2. The correlation coefficients are bounded to the range 0 and 1

- a) S1 is true and S2 is true
- b) St is true and \$2 is false
- c) S1 is false and S2 is true
- d) S1 is false and \$2 is false

ANS: A

4. To represent perfect positive correlation the Pearson coefficient in Correlation analysis should be

- a) 0
- b) -1
- c) 1
- d) None of the given options

ANS: ~~A~~ C

5. Which one is true?

(A) Ridge regression decreases the complexity of a model but does not reduce the number of variables since it never leads to a coefficient been zero rather only minimizes it

(B) Lasso regression is good for feature reduction

(c) As the regularization parameter increases the value of the efficient tends towards zero. This leads to both low variance and low bias

a) Only A and B

b) Only A, B and C

c) Only A and C

d) All A, B and C

ANS: D



6) The strength (degrees) of the correlation between a set of independent variable X and a dependent variable Y is measured by

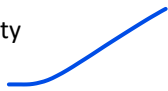
a) Coefficient of Correlation

b) Coefficient of Determination

c) Standard error of estimate

d) Probability

Ans: A



7. Choose the correct statement

a) As the hypothesis class increases, approximation error increases and estimation decreases

b) As the hypothesis class increases, approximation error decreases and estimation increases

c) As the hypothesis class decreases, approximation error increases and estimation decreases

d) As the hypothesis class decreases, approximation error decreases and estimation increases

Ans: C



8) Formula for Bayes theorem is

a) $P(A|B) = P(A)P(B)$

b) $P(A|B) = P(B|A) P(A) P(B)$

c) $P(A|B) = P(B|A) P(B)$

d) $P(A|B) = 1P(B)$

Ans: B



9) It is observed that 50% of mails are spam. There is a software that filters spam mail before reaching the inbox. Its accuracy for detecting a spam mail is 99% and chances of tagging a non-spam mail as spam mail is 5%. If a certain mail is tagged as spam find the probability that is not a spam mail

a) 5.3% approx.

- b) 3.9% approx
- c) 5.7% approx.
- d) 4.5% approx.

Ans: D

10) Machine Learning algorithm evaluate the model based on which data

- a) Testing Data
- b) Transfer data
- c) Data Training
- d) None of the above

Ans: A

11) If value of k is very large in KNN algorithm model is

- a) Underfitting
- b) Overfitting
- c) Perfect fit
- d) None of these

Ans: A

12) What is used to measure the uniform convergence?

- a) VC-dimension
- b) Natarajan Dimension
- c) All of these
- d) Rademacher complexity

Ans: D

13) Natarajan dimension is the generalization of

- a) Rademacher complexity
- b) non-uniform learnability
- c) VC-dimension
- d) Consistency learnability

Ans: C

14. According to no free lunch theorem:

- a) One classifier can be prefer over another without prior knowledge
- b) One feature can be prefer over another without prior knowledge
- c) All classifier do not perform equally if performance is taken average overall objective functions

d) All classifier perform equally if performance is taken average overall objective functions

Ans: 

15. Choose the correct statement:

a) As the hypothesis class increases, approximation error decreases and estimation error increases.

b) As the hypothesis class increases, approximation error increases and estimation error decreases.

c) As the hypothesis class decreases, approximation error increases and estimation error decreases

d) As the hypothesis class decreases, approximation error decreases and estimation error increases

Ans:  B

16. Consider the following confusion matrix. What is the precision of the model?

Predicted	Class_pos	Class Neg
Class_pos	114	86
Class Neg	7	93

a) 0.75

b) 0.57

c) 0.94

d) 0.4

Ans:  C

17. Complete the given statement of code snippet if the 90% of the data is given for training the model.

`X_train,X_test,y_train,y_test=train_test_split(X,y,_____, random_state=0)`

a) test size-0.1

b) test size 0.2

c) test shape-0.3

d) None of these

Ans:  A

18. RANSAC is a a non-deterministic iterative algorithm that estimates the parameter of a _____ learning algorithm from a dataset that contains outliers.

a) Unsupervised

b) Supervised

c) Reinforcement

d) None of the given options

Ans:  B

19. In Bayes theorem, the previous probabilities that are updated by using new available information is called as:

- a) prior probabilities
- b) posterior probabilities
- c) independent probabilities
- d) dependent probabilities

Ans:  B

20. To predict the "stock market analysis" is an example of which of the following?

- a) Supervised Machine learning: regression
- b) Supervised Machine learning: classification
- c) UnSupervised Machine learning
- d) Reinforcement Learning

Ans: A 

21) Choose the correct statement

S1) Polynomial regression analysis is used to represent a non-linear relationship between dependent and independent variables

S2) Polynomial regression is the variant of the multiple linear regression model except best fit line curved than straight

- a) S1 is true and S2 is false
- b) S1 is false and S2 is true
- c) S1 is true and S2 is true
- d) S1 is false and S2 is false

Ans: C 

22) Choose the correct statement in terms of handling the overfitting?

- 1. Increases the Dimensionality of the Data
- 2. Decreases the Dimensionality of the Data
- 3. Use regularization method
- 4. Use kernel approach

- a) 1 and 3
- b) 2 and 3
- c) 1 and 2
- d) 2 and 4

Ans: A 

23) Which of the following regression model uses sigmoid activation function?

- a) Linear regression
- b) Polynomial regression
- c) Multiple regression
- d) Logistic regression

Ans: D

24) To plot the Scatter plot matrix(for EDA) we will use the Heat Map function from the _____ library

- a) Numpy
- b) Pandas
- c) Seaborn
- d) Matplotlib

Ans: C

25) Choose the correct statement in terms of handling the overfitting?

- 1. Increase the Dimensionality of the Data
- 2. Decrease the Dimensionality of the Data
- 3. Use regularization method
- 4. Use Kernal approach

- a) 1 and 3
- b) 2 and 3
- c) 1 and 2
- d) 2 and 4

Ans: B

26) Consider the given dataset

How many total numbers of examples are present in the dataset?

- a) 1500
- b) 1000
- c) 500
- d) Can't be determined

Ans:

27) Choose the statements:

S1: Regularization is one approach the problem of underfitting

S2: The difference between ridge and lasso regression is that lasso tends to make coefficients to absolute zero as compared to Ridge .

- a) S1 is true and S2 is true
- b) S1 is true and S2 is false

- c) S1 is false and S2 is true
- d) S1 is false and S2 is false

Ans: ~~B~~ A

28) Choose the correct statements

S1: Every decision tree has low variance

S2: A random forest is an ensemble technique capable of performing both regression and classification tasks with use of multiple decision trees

S3: In the case of regression problem to calculate the final output in Decision trees we use majority voting

- a) S1 is false and S2 is true and S3 is false
- b) S1 is true and S2 is true and S3 is false
- c) S1 is true and S2 is true and S3 is false
- d) S1 is false and S2 is true and S3 is true

Ans: ~~B~~ A

29) A training set is called epsilon-representative if

- a) For every h , $|L_s(h) - L_d(h)| \leq \epsilon$
- b) For every h , $L_s(h) - L_d(h) \geq \epsilon$
- c) For every h , $L_s(h) - L_d(h) \leq \epsilon$
- d) For every h , $|L_s(h) - L_d(h)| \geq \epsilon$

Ans: ~~B~~ A

30) What does the Bayesian network provides/

- a) Partial Description of the domain
- b) Complete description of the problem
- c) Complete description of the domain
- d) None of the mentioned

Ans: A