MACHINE LEARNING ANSWERS

1 - D) None of these

2 - A) max_depth

3 - A) SMOTE

4 - C) 1 and 3

5 - D) 1-3-2

6 - D) Logistic Regression

7 - C) CART can only create binary trees (a maximum of two children for a node), and CHAID can create multiway trees (more than two children for a node)

8 – A and C

9 – A and D

10 - C) Underfitting

11 - One-Hot-Encoding has the advantage that the result is binary rather than ordinal and that everything sits in an orthogonal vector space. The disadvantage is that for high cardinality, the feature space can really blow up quickly and you start fighting with the curse of dimensionality.

12- Dealing with imbalanced datasets entails strategies such as improving classification algorithms or balancing classes in the training data (data preprocessing) before providing the data as input to the machine learning algorithm. The later technique is preferred as it has wider application.

13 - The key difference between ADASYN and SMOTE is that the former uses a density distribution, as a criterion to automatically decide the number of synthetic samples that must be generated for each minority sample by adaptively changing the weights of the different minority samples to compensate for the skewed .

14- GridSearchCV tries all the combinations of the values passed in the dictionary and evaluates the model for each combination using the Cross-Validation method. Hence after using this function we get accuracy/loss for

every combination of hyperparameters and we can choose the one with the best performance.

15 -

- R Square/Adjusted R Square.
- Mean Square Error(MSE)/Root Mean Square Error(RMSE)
- Mean Absolute Error(MAE)

PYTHON ANSWERS

1 - C) %

2 - B) 0

3 - C) 24

4 - A) 2

5 - D) 6

6 - C) the finally block will be executed no matter if the try block raises an error or not.

7 - A) It is used to raise an exception

8 - A) in defining an iterator

9 – B and C

10 – A and B

11 - num = int(input())

factorial = 1

check if the number is negative, positive or zero

if num < 0:

    print("Sorry, factorial does not exist for negative numbers")

elif num == 0:

    print("The factorial of 0 is 1")

```
else:

    for i in range(1,num + 1):

        factorial = factorial*i

    print("The factorial of",num,"is",factorial)
12 - num = int(input("Enter a number: "))

if num > 1:
   for i in range(2,num):
       if (num % i) == 0:
           print(num,"is not a prime number")
           print(i,"times",num//i,"is",num)
           break
   else:
       print(num,"is a prime number")

else:
   print(num,"is not a prime number")

13 - def isPalindrome(s):
    return s == s[::-1]



# Driver code
```

```
s = "malayalam"
ans = isPalindrome(s)

if ans:
   print("Yes")
else:
   print("No")

14 - a = float(input("Enter base: "))
b = float(input("Enter height: "))
x = float(input("Enter angle: "))

c = math.sqrt(a ** 2 + b ** 2)

print("Hypotenuse =", c)

15 - # initializing string
test_str = "GeeksforGeeks"

# using naive method to get count
# of each element in string
all_freq = {}

for i in test_str:
   if i in all_freq:
      all_freq[i] += 1
```

```
    else:
        all_freq[i] = 1

# printing result
print ("Count of all characters in GeeksforGeeks is :\n "
                                + str(all_freq))
```

STATISTICS ANSWERS

1 - b. The probability of failing to reject H0 when H1 is true

2 - b. null hypothesis

3 - a. level of significance

4 - b. the t distribution with n - 1 degrees of freedo

5 - accepting Ho when it is false

6 - d. a two-tailed test

7 - the probability of either a Type I or Type II, depending on the hypothesis to be tested

8 - the probability of committing a Type II error

9 - a. $z > z\alpha$

10 - c. the level of significance

11 - a. level of significance

12 - a. Degrees of Freedom

13 - Statistical Analysis. Analysis of Variance, i.e. ANOVA in SPSS, is used for examining the differences in the mean values of the dependent variable associated with the effect of the controlled independent variables, after taking into account the influence of the uncontrolled independent variables.

14 - The factorial ANOVA has a several assumptions that need to be fulfilled – (1) interval data of the dependent variable, (2) normality, (3) homoscedasticity, and (4) no multicollinearity.

15 - The only difference between one-way and two-way ANOVA is the number of independent variables. A one-way ANOVA has one independent variable, while a two-way ANOVA has two.