## INDEX

| **S.NO** | **TITLE** |  |
| --- | --- | --- |
| **1** | Each new term in the Fibonacci sequence is generated by adding the previous two terms. By starting with 1 and 2, the first 10 terms will be:1,2,3,5,8,13,21,34,55,89,…  By considering the terms in the Fibonacci sequence whose values do not exceed four million, find the sum of the even-valued terms. |  |
| **2** | The prime factors of 13195 are 5,7,13 and 29.  What is the largest prime factor of the number 600851475143? |  |
| **3** | A palindromic number reads the same both ways. The largest palindrome made from the product of two 2-digit numbers is 9009=91×99.  Find the largest palindrome made from the product of two 3-digit numbers. |  |
| **4** | By listing the first six prime numbers: 2,3,5,7,11, and 13, we can see that the 6th prime is 13.  What is the 10001st prime number? |  |
| **5** | A Pythagorean triplet is a set of three natural numbers, �<�<�, for which,�2+�2=�2.  For example, 32+42=9+16=25=52.  There exists exactly one Pythagorean triplet for which �+�+�=1000. Find the product ���. |  |
| **6** | **Longest Collatz Sequence** |  |
| **7** | **Factorial Digit Sum** |  |
| **8** | **Amicable Numbers** |  |
| **9** | **Pandigital products** |  |
| **10** | **Circular Prime** |  |
| **11** | **Create data files having name, age, DoJ, DoR, empcode,salary in json,xml,xls**  **Merge all those files as a singlefile into xls file** |  |
| A) How will you merge these two tables to create a single table |  |
| B) Print those who are receiving salary greater than 5000 |  |
| C) Print those who are receiving salary inbetween 1000 and 10000 |  |
| D) Print those employees whose age is greater than 50 |  |
| E) Print those employees who have joined the company in less than  one year |  |
| 12 | **Mean, Median, Mode and Standard Deviation** |  |
| 13 | **Input XLS file and find the Mean, Median, and Mode** |  |
| 14 | **Correlation without using builtin function** |  |
| 15 | **Linear Regression using dataset** |  |
| 16 | **Multiple Linear Regression using dataset** |  |
| 17 | **Logistic Regression** |  |
| 18 | **Poisson Regression** |  |
| **19** | **Non-linear equation** |  |
| 20 | **Charts and Graphs** |  |
| A) Bar Chart |
| B) Box Plot |
| C) Pie Chart |
| D) Histogram |
| E) Line Plot |
| 21 | **Distributions** |  |
| A) Binomial Distribution |
| B) Normal Distribution |
| C) Continuous Uniform Distribution |
| D) Exponential Distribution |

|  | F) Chi-squared Distribution |  |
| --- | --- | --- |
| 22 | **Hierarchical Clustering** |  |
| 23 | **K – Means Clustering** |  |
| 24 | **Case study on Guna’s Theory** |  |
| 25 | **Analysis of Variance (ANOVA)** |  |
| 26 | **Wilcox on signed-rank test** |  |
| 27 | **Time Series Analysis** |  |
| 1. Moving Average |  |
| Auto Regression |  |
| 3. ARIMA Model |  |
| 4. Time series analysis using Stock Data |  |
| 5. Time series analysis using Weather Temperature data |  |
| 28 | **Decision Trees on any dataset** |  |
| 29 | **Random Forest using Titatnic dataset** |  |
| 30 | **Survival analysis** |  |
| 31 | **Mathematical functions using Numpy** |  |
| 32 | **Data analytics using Pandas** |  |
| 33 | **Visual representations using Matplotlib** |  |
| 34 | **Normal distribution to evaluate fitness of data** |  |