CPNM Lab Assignment Day 7

Date – 1-02-2023

1. Create a text file “Input.txt” manually which contains the marks of 30 students (out of 100). Write a C program which will compute the mean and standard deviation of these 30 numbers and put them in an output file “Output.txt”.
2. A rocket is launched from the ground. Its acceleration measured every 5 seconds is given below:

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| t (s) | 0 | 5 | 10 | 15 | 20 | 25 | 30 | 35 | 40 |
| a (m/s2) | 41 | 45.25 | 48.51 | 51.25 | 54.35 | 59.48 | 61.50 | 64.3 | 68.7 |

Find the velocity and position of the rocket at t = 40 s. Use both Simpson’s and trapezoidal rules and compare the results.

1. Write a menu-driven program for finding roots of nonlinear equation x3 – 4x – 9 = 0 using ① Bisection ②Regula Falsi ③ Newton – Raphson methods.