**Department of Computer Science and Engineering**

**CSE 330: Numerical Methods**

**ASSIGNMENT SUMMER 19**

**Full Marks: 15**

***Question 1:*** To find contraction of a steel cylinder, one needs to regress the thermal expansion coefficient data to temperature [5]

|  |  |
| --- | --- |
| **Temperature, *T* ()** | **Coefficient of Thermal Expansion, (in/in/** |
| 80 | 6.47 x |
| 40 | 6.24 x |
| -40 | 5.72 x |
| -120 | 5.09 x |
| -200 | 4.30 x |
| -280 | 3.33 x |
| -340 | 2.45 x |

**Table 1** The thermal expansion coefficient at given different temperatures

Fit the above data to

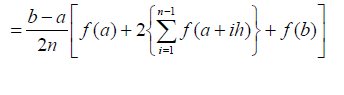
***Question 2:*** Use the multiple-segment trapezoidal rule to find the area under the curve [5]

from with

***[FORMULAS ON THE NEXT PAGE]***

***Linear Regression Coefficients formula:***

***Trapezoidal rule(multiple segment) formula:***



**DEADLINE OF HARD COPY SUBMISSION:**

**August 7th , class time (section 4)**

**August 8th , class time (section 7)**