Amrita School of Engineering, Amritapuri Campus
Amrita Vishwa Vidyapeetham
Department of Computer Science and Engineering

15CSE387-3 Scientific Computing (Open Lab)

B.Tech. End Semester Examination, May 2021

Max. Time: 2 Hours **Max. Marks: 15**

GENERAL INSTRUCTIONS

1. Submit 3 (Three) .py files (having Code) and 3 (Three) .pdf files (having Output)
2. Name files as follows, if your roll number is AM.EN.U4CSE18001, then you must submit 6 (Six) files with names as **18001_Q1.py**, **18001_Q1.pdf, 18001_Q2.py**, **18001_Q2.pdf, 18001_Q3.py**, **18001_Q3.pdf**
3. Please note any other submission violating instructions 1 and 2 will not be evaluated and **ZERO** marks will be given for such irresponsible submission.
4. Display required outputs only. Other outputs will not be evaluated.
5. Similar copies will be given zero marks.
6. The output should be aligned with given specifications.
7. Zero marks will be given for Non submission
8. After allotted time the exam will be closed automatically preventing you from further submissions
9. For all programs use the attached file **ScientificComputing.csv**
10. This Set is for students having last digit of roll number **0 or 7**

Set 1

Write a Python code with given specifications and display required outputs only

Number	Question	Marks
1	Display sum of column (0, 0, 0, 0)	2
2	Convert column (0, 0, 0, 0) into a matrix of 32 rows and 32 columns. First row in matrix is the first 32 values in column (0, 0, 0, 0) and last row in matrix contains last 32 values in column (0, 0, 0, 0) like that. Display the following 1. Trace 2. Determinant 3. Rank 4. Largest Eigen Value	4
3	Group rows with similar pattern into a list Ex: [34,66] belongs to a group, because 35'th and 67'th row are same (Note : index starts from 0) [0] belongs to another group, because first row values are unique Display total number of such groups Display number of groups having only 1 element	9