19/12/23

DOON UNIVERSITY, DEHRADUN

End Semester Examination, 3rd Semester, 2023

Academic Year 2023-24 (Odd Semester)

School of Physical Sciences, Department of Physics

Programme Name: M. Sc. Integrated

PHS-104, Scientific Writing

Time Allowed 120 Minutes *Maximum Marks: 30*

SECTION: A (Each 2 marks)

1. What are the commands for plotting "*log base e*" and "*log base 10*" functions in GNUPLOT?
2. Write the commands for error and inverse error functions in GNUPLOT.
3. Explain the *set* command in GNUPLOT with at least two examples.

SECTION: B (Each 4 marks)

4. How do you deal with comments in a data file while using the file in GNUPLOT script?
5. Explain a *Multiplot* command with different variations and examples.
6. Explain the *splot* command in GNUPLOT.

SECTION: C (Each 12 marks)

7. Write a sample GNUPLOT Script which does the following:
   (a) Fits the data given in the file named force.dat (having two columns)
   (b) The fitting function is a tangent hyperbolic function ($A\ tanh(\frac{x}{b})$)
   (c) Shows the error in the fitting on screen
   (d) Plot the data and the best fit curve on the same plot
   (e) The plot must have the following:
   (i) Title in two lines, (ii) large points, (iii) label of X-axis having Greek symbols,
   (iv) Label of Y-axis in italics.