

U.G. 5th Semester Examination - 2020**PHYSICS****[HONOURS]****Discipline Specific Elective (DSE)****Course Code : PHY(H)-P-DSE-01/PR****[PRACTICAL]****(Applied Dynamics)**

Full Marks : 20

Time : 2 Hours

*The figures in the right-hand margin indicate marks.*1. Answer any **four** questions: $5 \times 4 = 20$

Write down the algorithm for Computing and Visualizing trajectories using software such as Scilab, Maple, Octave, XPPAUT based on Applied Dynamics problems (any **four**):

- A) To determine the coupling coefficient of coupled pendulums.
- B) To determine the coupling and damping coefficient of damped coupled oscillator.
- C) To study rate equations for chemical reactions e.g. auto catalysis, bistability.

- D) Computational visualization of trajectories in the Sinai Billiard.
- E) Computational visualization of fractal formations of Deterministic fractal.
- F) Computational Flow visualization – streamlines, pathlines, Streaklines.
- G) To study population models e.g. exponential growth and decay, logistic growth.

[Turn over]