DEPARTMENT OF PHYSICS
INDIAN INSTITUTE OF TECHNOLOGY MADRAS

PH1010-2020 **MOCK Mini -Test (XX Marks)**

This is a MOCK test and will NOT be evaluated.

Important instructions:

1. Write your answers with ALL required steps in good quality A4 sheets.
2. Begin your answers for every question on a fresh A4 sheet.
3. Use only dark blue or black ink for writing answers (strictly no pencil).
4. Write the **name and IITM roll no** at the top right corner of the A4 sheet. Number the pages in order.
5. Use of calculator, books, and online resources are permitted.
6. Digitise your answer scripts neatly taking into account proper cropping and contrast.
7. Upload only a single, combined PDF file.
8. DO NOT FORGET to click **SUBMIT** button after uploading your answer file.

Submission deadline: 26th NOV 4:00 P.M.

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1. A particle of mass m is subject to a force (F). Find the time dependent position $x(t)$ of the particle for the following two cases :
   (a) $F(x) = kx$, with $k > 0$, the initial position is x_0, and the initial speed is zero.
   (b) $F(v) = -bv^2$ and the initial position is zero, and the initial speed is v_0.