University of Hyderabad
School of Physics

M.Sc.-I/IMSc.-III Classical Mechanics **June 15, 2018**

May 14-Jul 6 (2018) **MM: 20**

Quiz-II

[1] Obtain the Lagrangian for a pendulum attached to spring as shown in the figure.

[2] Find equilibrium points and Lagrangian in small amplitude approximation.[2]

[3] Write the equations of motion from the Lagrangian in small amplitude approximation.

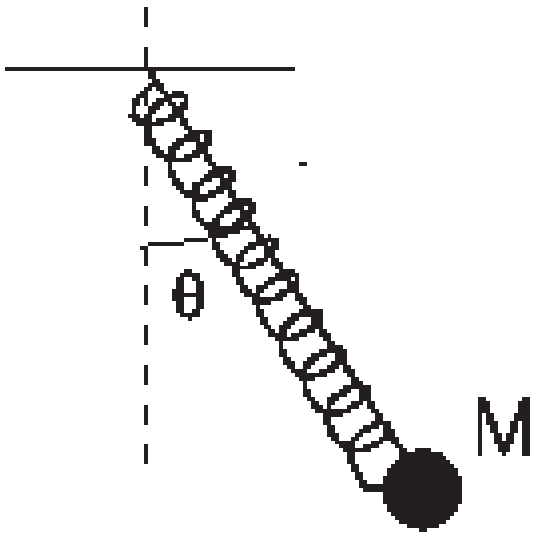

Fig. **1** Pendulum With Spring

The natural length of the sping is a and k is the spring constant.