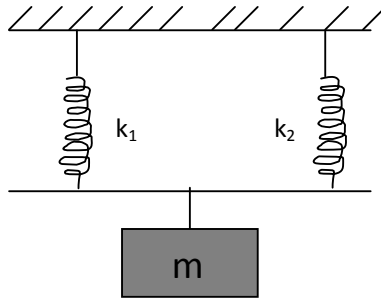


**PHYSICS**

- The dimensions of entropy are  
 (A)  $M^0L^{-1}T^0K$       (B)  $M^0L^{-2}T^0K^2$       (C)  $MLT^{-2}K$       (D)  $ML^2T^{-2}K^{-1}$
- In a vernier calipers, p divisions of its main scale match with (p+1) divisions on its vernier scale. Each division of the main scale is k units. Using the vernier principle, its least count will be  
 (A)  $k \Rightarrow (1/p)$       (B)  $(k+1)/p$       (C)  $(p+1)/k$       (D)  $k/(p+1)$
- The torque of a force  $\vec{F} = 5\vec{i} + 6\vec{j} + 3\vec{k}$  acting at a point  $\vec{r} = 7\vec{i} + 2\vec{j} + 3\vec{k}$  is  
 (A)  $18\vec{i} + 24\vec{j} + 34\vec{k}$       (B)  $18\vec{i} + 24\vec{j} + 34\vec{k}$   
 (C)  $15\vec{i} + 24\vec{j} + 34\vec{k}$       (D)  $5\vec{i} + 2\vec{j} + 34\vec{k}$
- Two springs of force constants  $k_1$  and  $k_2$  are connected as shown in figure below. The time period of vertical oscillation of mass m is given by



- (A)  $2\pi \sqrt{\frac{m}{k_1 + k_2}}$       (B)  $2\pi \sqrt{\frac{m(k_1 + k_2)}{k_1 k_2}}$   
 (C)  $2\pi \sqrt{\frac{m(k_1 k_2)}{k_1 + k_2}}$       (D)  $2\pi \sqrt{\frac{m}{k_1 k_2}}$

---

**SPACE FOR ROUGH WORK**