

1. 4 m ; 40 s ; 10 ; $t=0$
 $t = 1/3 \text{ s}$;

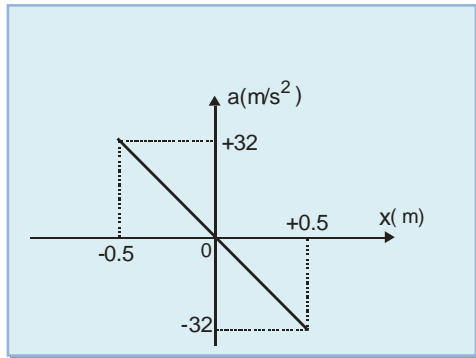
2. $= 8 \mu \frac{2\pi}{3} t \text{ (S)}$
 $= +4 \text{ m}$; $= +4 \text{ m}$; $= -4 \text{ m}$

3. $= 10 \text{ cm}$; $= 4 \text{ sec}$
 $t=0$; $t=0$; $= +/2$; $= +$
 $t=0$; $x = + 5\sqrt{2} \text{ cm}$
 $x = 0.1 \mu (\frac{f}{2} t + \frac{f}{2})$; $x = 0.1 \mu (\frac{f}{2} t + \frac{f}{6})$; $x = 0.1 \mu (\frac{f}{2} t + \frac{3f}{4})$

4. $= \mu (t + t_0)$
 40 cm
 $t=0$; $= +5 \text{ cm}$; $= - 40\sqrt{3} \text{ cm/s}$
 $t=0$; $t = /24 \text{ s}$;
 $= 10 \text{ cm}$; $= 8 \text{ Hz}$; $5/6$; 10 cm

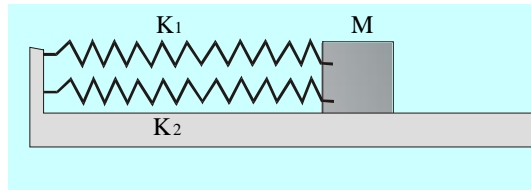
5. m/sec ; $x_1 = 4 \text{ m}$; $x_2 = 3 \text{ m}$; 5 m ; sec
 $v_1 = 6 \text{ m/sec}$; $v_2 = 8$

6. $t=0$; $t_1 = /3 \text{ s}$
 $-16\sqrt{3} \text{ m/s}^2$; 2 m ; $0.25\sqrt{3} \text{ m}$; 2 m/s



7. $\mu = 0,2m$

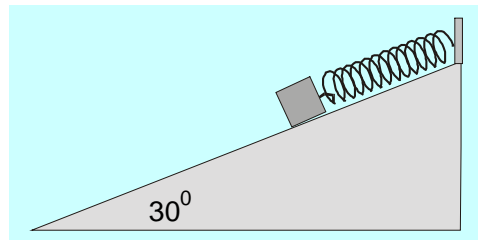
$\mu = 180 N/m$ $K_2 = 220 N/m$ $m = 4Kg$



$t = 0$
 $x = -0,1m$
 $v = 0,2 \mu(10t + \sqrt{2})$, $t = 10 s$, $x = 0m$, $t = 20s$ St

8. $m = 1Kg$

$K = 100N/m$



$t = 0$
 $x = 0,05 \mu(10t + 3 \sqrt{2})$ st

9. $m = 0,01Kg$

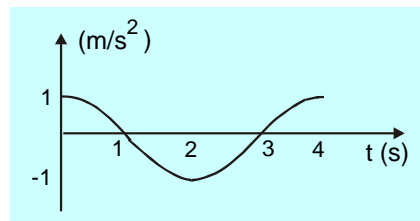
$E = 32 \cdot 10^{-4} \text{ Joule}$

$F = -16 x(S.I.)$

$t = 0$

$t = 1/2 \text{ sec}$, $A = 0,2 m$ $x = 0,2 \mu(4t + \sqrt{4})$ (S.I.) $x = 0,2 \mu(4t + 7 \sqrt{4})$ 54

10. $\mu = 0,4m$, 1



$t = 1s$
 $x = 0,4m$, 1

11. $m = 0,1 g$

$A = 0,1m$

$T = 2sec$

$t = 0$

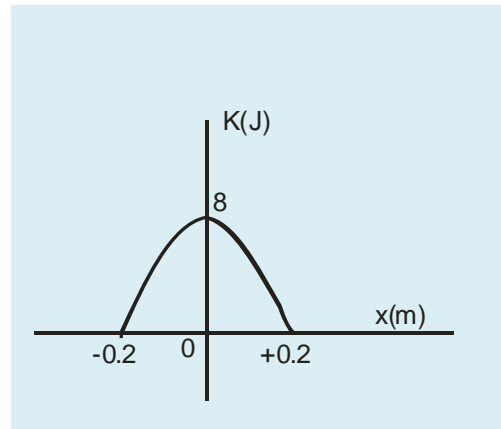
$x = 5\sqrt{3} \cdot 10^{-2} m$

$t = T/4$

$1,25 \cdot 10^{-3} \text{ J}$, $3,75 \cdot 10^{-3} \text{ J}$, $5 \cdot 10^{-2} \text{ N}$. 53
 $x = 0,1 \mu(t + 2/3)$

12.

$m = 1 \text{ kg}$
 $v = +2 \text{ m/s}$
 $t = 0$
 $x = 80$, $-0,1\sqrt{3} \text{ m}$ $k = 8$ $^2(20t + 5/3)$



13.

$\mu = 20 \text{ /m}$
 $m = 0,05 \text{ Kg}$
 $x = 10\sqrt{3} \text{ cm}$
 $v = 2 \text{ m/s}$
 $t = 0$
 $x = 0,2 \text{ m}$, $E = 0,4 \text{ J}$, $x = 0,2 \mu(20t + /3) \text{ S.I}$

14.

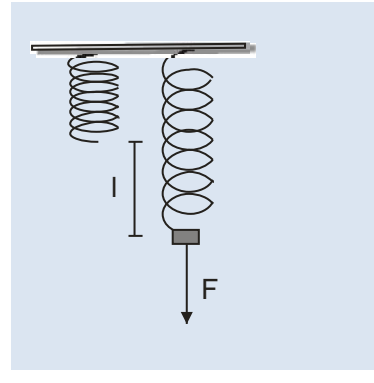
$m = 1 \text{ Kg}$
 $k = 200 \text{ N/m}$
 $v = \sqrt{6} \text{ m/s}$
 $t = 0$
 $x = 0,2 \text{ m}$, $E = 4 \text{ J}$, 40 Kg m/s^2 , 50 N , $x = 0,2 \mu(10\sqrt{2}t + /6)$

15.

$m = 1 \text{ Kg}$
 $k = 100 \text{ /m}$
 $v = \sqrt{3} \text{ m/s}$
 $t = 0$

- ii) ;
- iii) ;
- iv) $t_1 = 1/6 \text{ s}$;
 $(g = 10 \text{ m/s}^2) : x = 0,2 \mu (10t + 5/6) , = 2^2 (10t + 5/6)$

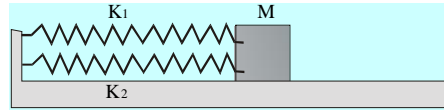
16. $m = 1 \text{ Kg}$
 $F = 20 \text{ N}$
 $l = 0,3 \text{ m}$
 $t = 0$
 : $= 100 / \text{m}$, $t = 1/20 \text{ s}$, $A = 0,2 \text{ m}$, $K = 2 \mu^2 10t$
 $g = 10 \text{ m/s}^2$
 oro



17. $m = 0,5 \text{ Kg}$
 $= 50 / \text{m}$
 $0,2 \text{ m}$
 $t = 0$
 $x = +0,1 \text{ m}$
 $g = 10 \text{ m/sec}^2$
 : $= 1/5 \text{ sec}$
 $, 1 \text{ J}, x = 0,2 \mu (10t + 5/6)$

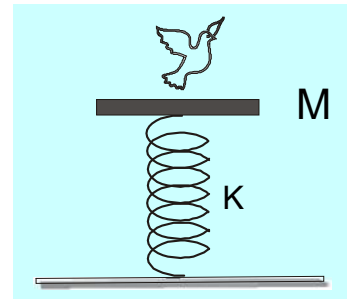
18. $m = 1 \text{ Kg}$
 $x = 0,3 \text{ m}$
 25%
 $0,8 \sqrt{3} \text{ m/s}^2$
 25%
 $t = 1/6 \text{ s}$; $x = 0,2 \sqrt{3} \mu (2t + 2/3) \text{ st}$

19. $m = 1\text{Kg}$



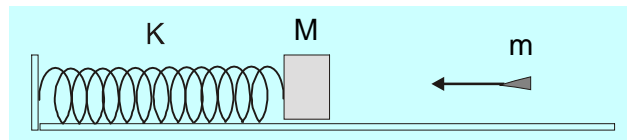
$K_1 = 220 \text{ N/m}$
 $K_2 = 180 \text{ N/m}$
 $x = -0,1\text{m}$
 $t = 0$
 $x = 0,2$
 $\mu(20t + 7/6) \text{ (S.I.)}$
 59

20. $m = 1\text{Kg}$



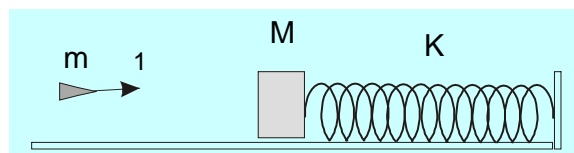
$K = 200 \text{ N/m}$
 $m = 0,2\text{Kg}$
 $v = 2\text{m/sec}$
 $x = 0,4\text{m/sec}$
 $0,03\text{m}$
 $0,09\text{J}$
 $0,64\text{J}$
 73

21. $m = 1\text{Kg}$



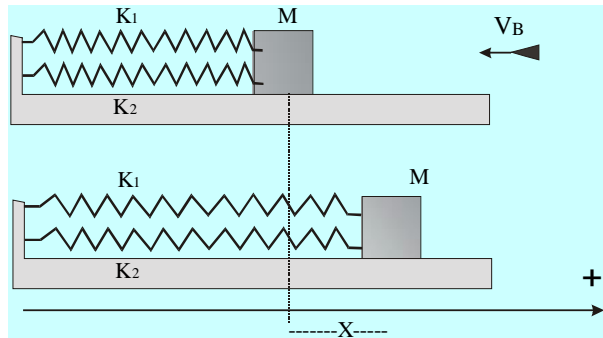
$K = 9\text{Kg}$
 $v_1 = 6\text{m/s}$
 $x_2 = 0,03\text{m}$
 $v_2 = 8\text{m/s}$
 $x_1 = 0,04$
 $A = 0,05\text{m}$
 $v = 100\text{m/s}$
 $\mu = 4 \cdot 10^5 \text{ /m}$
 $t = 100 \text{ s}$

22. $M = 9\text{Kg}$



$K = 160 \text{ N/m}$
 $m = 1\text{Kg}$
 $x = 0,25\text{m}$
 $v_1 = 10\text{m/s}$
 $t = 2\text{s}$
 1

23. $m = 1 \text{ Kg}$
 $k_1 = 180 \text{ N/m}$
 $k_2 = 220 \text{ N/m}$
 $x = 0,5 \text{ m}$



) $t = 0$

) $t = \frac{\pi}{40} \text{ sec.}$

) $x = 0,4 \text{ m}$

) $U = \frac{1}{2} k x^2 = \frac{1}{2} \cdot 400 \cdot (0,4)^2 = 32 \text{ J}$

) $v = +A \omega \sin(\omega t) = 120 \text{ m/sec}$

) $m = 0,1 \text{ Kg}$

24. $k = 50 \text{ N/m}$
 $m_1 = 100 \text{ g}$
 $m_2 = 1,9 \text{ kg}$
 $v = 4\sqrt{2} \text{ m/sec.}$
 $g = 10 \text{ N/kg}$

25. $m = 2 \text{ kg}$
 $k = 400 \text{ N/m}$
 $t = 0$
 $v = \sqrt{3} \text{ m/s}$
 $t = \frac{\pi}{12} \text{ s}; (g = 10 \text{ m/s}^2)$

26. $m_1=1\text{Kg}$ $A=10\text{cm}$ $f=100/2 \text{ Hz}$

) $U = \frac{9}{16} \text{ K}$

) $v_2=80\text{m/sec}$ $m_2=0,1\text{kg}$

) $\mu - \mu ;$ m_1 max/ max
 $:^2 \cong 10.$

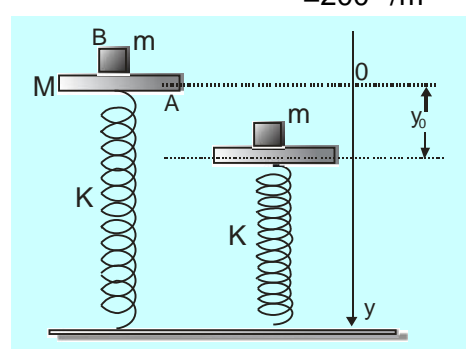
27. $=40\text{cm}$ $=10\text{s}$

$m = M/4$ $= \frac{A\sqrt{3}}{2}$ $= 3 \text{ max}$

$=100 \text{ /m}$
 $:\ =\sqrt{5}$ $20\sqrt{7} \text{ cm}$ $10\sqrt{21} \text{ N}$ $88,89\%$ syn N I

28. $=200 \text{ /m}$

$=1,5\text{Kg}$ $m = 0,5\text{Kg}$
 $y_0 = \frac{\sqrt{5}}{10} \text{ m}$



$g=10\text{m/s}^2$
 52
 $:-0,1\text{m}$ $= -2\text{m/s}$ 10m/s^2 0.2m

