

1ο

μ

1. μ ... t=0, μ μ x > 0
>0. μ :

α) $x = A\eta\mu\omega t$

β) $x = A\eta\mu(\omega t + \frac{3\pi}{4})$

γ) $x = A\eta\mu(\omega t + \frac{\pi}{4})$

δ) $x = A\eta\mu(\omega t - \frac{\pi}{4})$

(5)

2. μ μ m μ μ

$f = f_0$ f_0

μ . μ μ m μ ,

μ , :

) μ $\frac{f_0}{2}$.

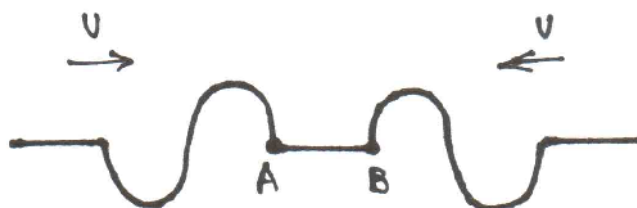
) μ .

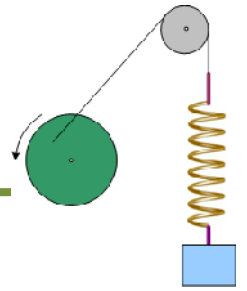
) μ .

) μ μ .

(5)

3. μ μμ μ μ μ μ
μ .

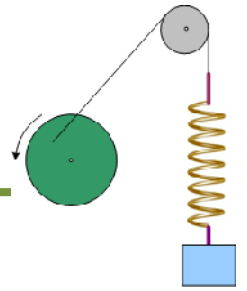




- μ , :
-) $\Phi_A > \Phi_B$) $\Phi_A < \Phi_B$) $\Phi_A = \Phi_B$) $\Phi_A = \Phi_B = \Pi$
- (5)

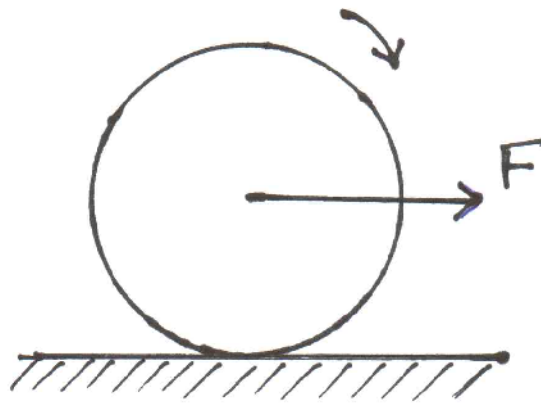
4. μ μ μ $I = \lambda m R^2$ μ μ
- :
-) μ .
-) μ .
-) .
-) .
- (5)

1. $K_{αρχ} = K_{τελ}$.
2. μ spin μ μμ
3. μ $f_A < f_s, v_A = v_s$ $\lambda_A < \lambda_s$.
4. μ $f_{αντ} = -bv$ μ μ .
5. Ο μ μ μ $\Phi_0 = \frac{\pi}{3} rad$ μ
- $\chi_A = \frac{3\lambda}{8}$ $\Phi_A = \frac{4\pi}{3} rad$.
- (5)



2°

μ μ μ F μ μ



1. μ $\frac{K_{μετ}}{K_{στροφ}} = 2$

:

i) $I_{cm} = \frac{1}{3} mR^2$

ii) $I_{cm} = \frac{2}{5} mR^2$

iii) $I_{cm} = \frac{1}{2} mR^2$

2. μ μ F $W_F = 60J$

μ :

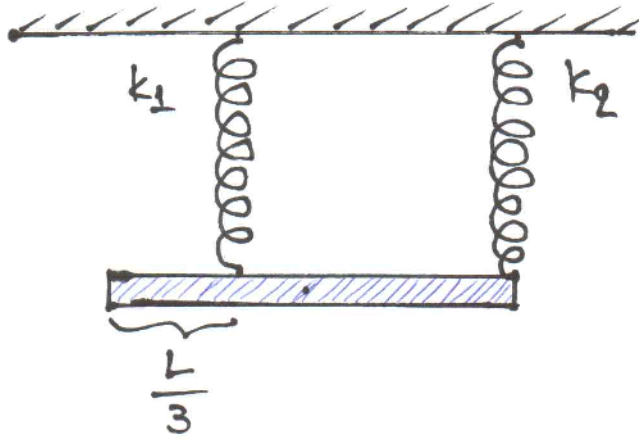
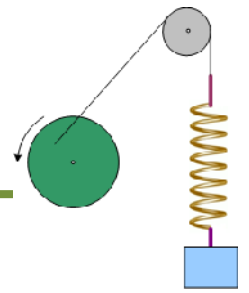
i) $W_{Tστ} = 60J$

ii) $W_{Tστ} = 20J$

iii) $W_{Tστ} = 30J$

(10)

μ μ μ L μ M μ
μ μ μ μ μ
μ 1, 2 :



- i) $K_1=K_2$
- ii) $K_1=3K_2$
- iii) $K_2=2K_1$

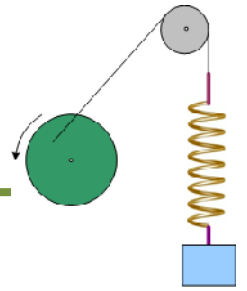
(8)

• $m=2\text{kg}$ μ $=200\text{N/m}$ μ
 () 10 5 sec. μ
 μ :
 i) 0,2 s ii) 0,5 s iii) 0,25 s

(7)

3°

() $P\mu =6m \mu$
 $\mu \mu \mu \Psi=A\eta\mu(4\pi t-2\pi x)$ (SI).
 $\mu t=0$.
) μ .
) $\mu \mu M \mu x_M=4m \mu$
 ;



-) μ .
-) μ .
-) μ μ μ m $d=0,1m$

μ $t=0$ μ .

i) μ - $x(t)$ m .

ii) μ μ $t=0,1$ s .

iii) μ m $x=+A$ μ

μ (2), μ μ μ

μ .

$$g=10m/s^2$$

(25)