Resonance®
Educating for better tomorrow

TARGET : NEET (UG) 2024

Course : SARANSH (Youtube Live CRASH COURSE)

PHYSICS
DPP
DAILY PRACTICE PROBLEMS
DPP NO. 1

PHYSICS: NEWTON'S LAW OF MOTION

DPP No. : 1

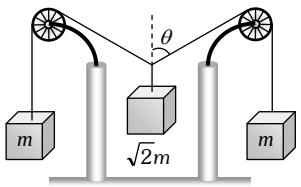
1. A ship of mass 3×10^7 kg initially at rest is pulled by a force of 5×10^4 N through a distance of 3 *m*. Assume that the resistance due to water is negligible, the speed of the ship is

(1) 1.5 m/s (2) 60 m/s (3) 0.1 m/s (4) 5 m/s

2. A stick of 1 *m* is moving with velocity of 2.7×10^8 ms^{-1}. What is the apparent length of the stick ($c = 3 \times 10^8$ ms^{-1})

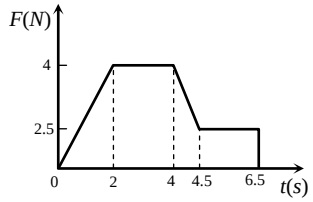
(1) 10 *m* (2) 0.22 *m* (3) 0.44 *m* (4) 2.4 *m*

3. The pulleys and strings shown in the figure are smooth and of negligible mass. For the system to remain in equilibrium, the angle θ should be :



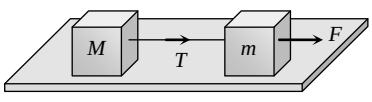
(1) 0º (2) 30º (3) 45º (4) 60º

4. A body of 2 *kg* has an initial speed $5ms^{-1}$. A force acts on it for some time in the direction of motion. The force time graph is shown in figure. The final speed of the body.



(1) 9.25 ms^{-1} (2) 5 ms^{-1} (c) 14.25 ms^{-1} (4) 4.25 ms^{-1}

5. Two masses *M* and *m* are connected by a weightless string. They are pulled by a force *F* on a frictionless horizontal surface. The tension in the string will be



(1) $\frac{FM}{m+M}$ (2) $\frac{F}{m+M}$ (3) $\frac{Fm}{M}$ (4) $\frac{Fm}{M+m}$

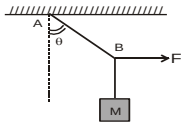
6. Two weights w_1 and w_2 are suspended from the ends of a light string passing over a smooth fixed pulley. If the pulley is pulled up at an acceleration *g*, the tension in the string will be

(1) $\frac{4w_1w_2}{w_1+w_2}$ (2) $\frac{2w_1w_2}{w_1+w_2}$ (3) $\frac{w_1w_2}{w_1+w_2}$ (4) $\frac{w_1w_2}{2(w_1+w_2)}$

7. The engine of a jet aircraft applies a thrust force of 10^5N during take off and causes the plane to attain a velocity of 1 *km*/*sec* in 10 *sec*. The mass of the plane is

(1) 10^2 kg (2) 10^3 kg (3) 10^4 kg (4) 10^5 kg

8. A mass M is suspended by a rope from a rigid support at A as shown in figure. Another rope is tied at the end B, and it is pulled horizontally with a force F. If the rope AB makes an angle θ with the vertical in equilibrium, then the tension in the string AB is :



(1) F sin θ (2) F/sin θ (3) F cos θ (4) F/cos θ

9. A uniform thick rope of length 5m is kept on frictionless surface and a force of 5N is applied to one of its end. Find tension in the rope at 1m from this end-

(1) 1N (2) 3N (3) 4N (4) 5N

10. Three block are connected as shown in fig., on a horizontal frictionless table and pulled to the right with a force T_3 = 60 N. If m_1 = 10 kg. m_2 = 20 kg. and m_3 = 30 kg. the tension T_2 is-

(1) 10 N (2) 20 N (3) 30 N (4) 60 N