ARJUNA (NEET)

Newton's Law of Motion

1. When an object is at rest
   (A) Force is required to keep it in rest state
   (B) No force is acting on it
   (C) A large number of forces may be acting on it which balance each other
   (D) It is in vacuum

2. A body of mass 2 kg is sliding with a constant velocity of 4 m/s on a frictionless horizontal table. The force required to keep the body moving with the same velocity is
   (A) 8 N
   (B) 0 N
   (C) 2×10^4 N
   (D) 12 N

3. A mass of 10 kg is suspended by a rope of length 2.8m from a ceiling. A force of 98 N is applied at the midpoint of the rope as shown in figure. The angle which the rope makes with the vertical in equilibrium is
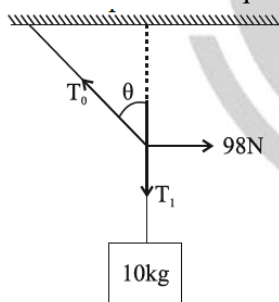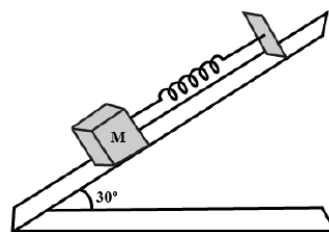

   (A) 30°
   (B) 60°
   (C) 45°
   (D) 90°

4. Two masses M_1 to M_2 connected by means of a string which is made to pass over light, smooth pulley are in equilibrium on a fixed smooth wedge as shown in figure. If $\theta = 60°$ and $\alpha = 30°$, then the ratio of M_1 to M_2 is
   (A) 1 : 2
   (B) $2 : \sqrt{3}$
   (C) $1 : \sqrt{3}$
   (D) $\sqrt{3} : 1$
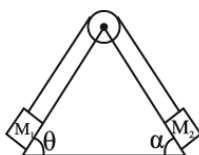
5. A body of mass 5kg is suspended by a spring balance on an inclined plane as shown in figure. The spring balance measure
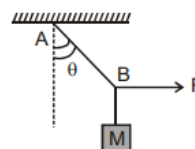

   (A) 50 N
   (B) 25 N
   (C) 500 N
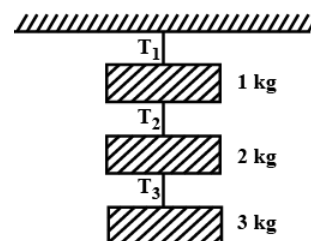   (D) 10 N

6. The tension in the spring is

   (A) Zero
   (B) 2.5 N
   (C) 5 N
   (D) 10 N

7. A mass 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 :

   (A) F sin θ
   (B) F/sin θ
   (C) F cos θ
   (D) F/cos θ

8. Find the tension T_2 for the system shown in figure.
   (A) 1g N
   (B) 2g N
   (C) 5g N
   (D) 6g N

9. A block of mass 4 kg is suspended through two light spring balances A and B in series. Then A and B will read respectively.

(A) 4 kg and zero kg

(B) zero kg and 4 kg

(C) 4 kg and 4 kg

(D) 2 kg and 2 kg

10. When an object is in equilibrium state, then

(A) It must be at rest

(B) No force is acting on it

(C) Its net acceleration must be zero

(D) All of these

11. In which of the following graphs, the total change in momentum is zero ?

(A)

(B)

(C)

(D)
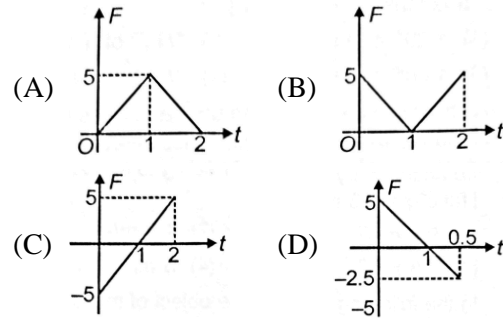
12. A weight Mg is suspended from the middle of a rope whose ends are at the same level. The rope is no longer horizontal. The minimum tension required to completely straighten the rope is

(A) $\dfrac{Mg}{2}$

(B) $Mg \cos \theta$

(C) $2Mg \cos \theta$

(D) Infinitely large

ANSWER KEY

1. (C)
2. (B)
3. (C)
4. (C)
5. (B)
6. (C)
7. (B)
8. (C)
9. (C)
10. (~)
11. (~)
12. (~)

Please share your feedback on PW Teachers-
https://forms.gle/jEBFswBuki4Ut2Lk6

For PW APP : https://physicswala.page.link/?type=contact-us&data=open
For PW Website : https://www.physicswallah.live/contact-us