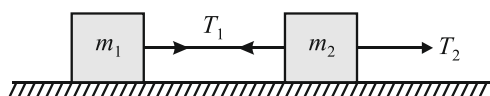# ARJUNA (NEET)

Newton's Law of Motion
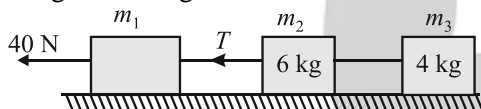
1. Two masses m_1 and m_2 are accelerated uniformly on frictionless surface as shown. The ratio of the tension T_1/T_2 :

   (A) $\dfrac{m_1}{m_2}$

   (B) $\dfrac{m_2}{m_1}$

   (C) $\dfrac{(m_1 + m_2)}{m_2}$

   (D) $\dfrac{m_1}{(m_1 + m_2)}$

2. Three blocks of masses m_1, m_2 and m_3 are placed on a horizontal frictionless surface. A force of 40 N pulls the system. Then calculate the value of T, if $m_1 = 10$ kg, $m_2 = 6$ kg, $m_3 = 4$ kg

   (A) 40 N
   (B) 20 N
   (C) 10 N
   (D) 5 N

3. Blocks are in contact on a frictionless table. A horizontal force $F = 3$N is applied to one block as shown. Then force exerted by the smaller block m_2 on block m_1 is
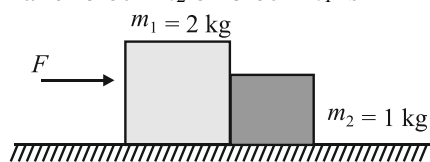
   (A) 1 N
   (B) 2 N
   (C) 3 N
   (D) 6 N

4. A cracker rocket is ejecting gases at a rate of 0.05 kg/s with a velocity 400 m/s. The accelerating force on the rocket is

   (A) 20 dyne
   (B) 20 N
   (C) 200 N
   (D) Zero

5. In the figure given below, with what acceleration does the block of mass m will move ? (Pulley and strings are massless and frictionless)
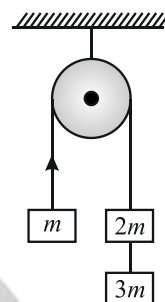
   (A) $\dfrac{g}{3}$

   (B) $\dfrac{2g}{5}$

   (C) $\dfrac{2g}{3}$

   (D) $\dfrac{g}{2}$

6. In the arrangement shown, the mass m will ascend with an acceleration (Pulley and rope are massless)

   $F = 3/2$ mg
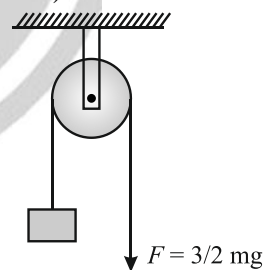
   (A) Zero

   (B) $\dfrac{g}{2}$

   (C) g

   (D) $2g$

7. A rocket of mass 5700 kg ejects mass at a constant rate of 15 kg/s with constant speed of 12 km/s. The acceleration of the rocket 1 minute after the blast is ($g = 10$ m/s²)

   (A) 34.9 m/s²
   (B) 27.5 m/s²
   (C) 3.50 m/s²
   (D) 13.5 m/s²

8. A balloon has 2 g of air. A small hole is pierced into it. The air comes out with a velocity of 4 m/s. If the balloon shrinks completely in 2.5 s. The average force acting on the balloon is
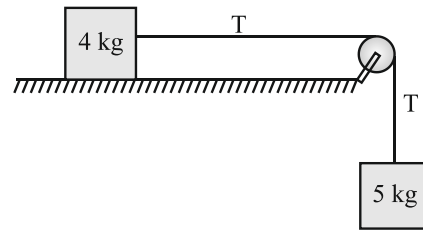
(A) 0.008 N   (B) 0.0032 N

(C) 8 N   (D) 3.2 N

9. Two masses as shown are suspended from a massless pulley. Calculate the acceleration of the 10 kg mass when masses are left free
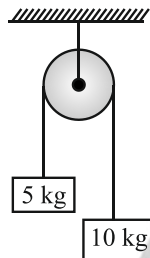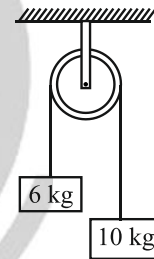

(A) $\dfrac{2g}{3}$ (B) $\dfrac{g}{3}$

(C) $\dfrac{g}{9}$ (D) $\dfrac{g}{7}$

10. Two bodies of 5 kg and 4 kg are tied to a string as shown in the figure. If the table and pulley both are smooth, acceleration of 5 kg body will be equal to

(A) g (B) $\dfrac{g}{4}$

(C) $\dfrac{4g}{9}$ (D) $\dfrac{5g}{9}$

11. A light string passes over a frictionless pulley. To one of its ends a mass of 6 kg is attached and to its other end a mass of 10 kg is attached. The tension in the string will be

(A) 50 N   (B) 75 N

(C) 100 N   (D) 150 N

ANSWER KEY

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

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