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**TARGET : NEET (UG) 2024**

**Course : SARANSH (Youtube Live CRASH COURSE)**

**PHYSICS**

**DPP**
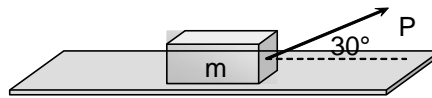DAILY PRACTICE PROBLEMS

**DPP NO. 1**

## PHYSICS: FRICTION

## DPP No. : 1

**1.** A block of mass 2 kg rests on a rough inclined plane making an angle of 30° with the horizontal. The coefficient of static friction between the block and the plane is 0.7. The frictional force on the block is

(1) 9.8 N      (2) $0.7 \times 9.8 \times \sqrt{3}$ N      (3) $9.8 \times \sqrt{3}$ N      (4) $0.8 \times 9.8$ N

**2.** A body of mass m rests on horizontal surface. The coefficient of friction between the body and the surface is  If the mass is pulled by a force P as shown in the figure, the limiting friction between body and surface will be



(1) $\mu mg$      (2) $\mu\left[mg+\left(\dfrac{P}{2}\right)\right]$      (3) $\mu\left[mg-\left(\dfrac{P}{2}\right)\right]$      (4) $\mu\left[mg-\left(\dfrac{\sqrt{3}P}{2}\right)\right]$

**3.** A 40 kg slab rests on a frictionless floor as shown in the figure. A 10 kg block rests on the top of the slab. The static coefficient of friction between the block and slab is 0.60 while the kinetic friction is 0.40. The 10 kg block is acted upon by a horizontal force 100 N. If g = 9.8 m/s², the resulting acceleration of the slab will be
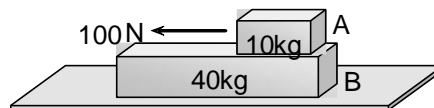


(1) 0.98 m/s²      (2) 1.47 m/s²      (3) 1.52 m/s²      (4) 6.1 m/s²

**4.** The blocks A and B are arranged as shown in the figure. The pulley is frictionless. The mass of A is 10 kg. The coefficient of friction between block A and horizontal surface is 0.20. The minimum mass of B to start the motion will be-



(1) 2 kg      (2) 0.2 kg      (3) 5 kg      (4) 10 kg

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**5.** A rope so lies on a table that part of it lays over. The rope begins to slide when the length of hanging part is 25 % of entire length. The co-efficient of friction between rope and table is:

(1) 0.33          (2) 0.25          (3) 0.5          (4) 0.2

**6.** A block of mass 4 kg is kept on ground. The co-efficient of friction between the block and the ground is 0.80. An external force of magnitude 30 N is applied parallel to the ground. The resultant force exerted by the ground on the block is:

(1) 40 N          (2) 30 N          (3) 0 N          (4) 50 N

**7.** Figure shows a block kept on a rough inclined plane. The maximum external force along the plane downwards for which the block remains at rest is 1N while the maximum external force along the incline upwards for which the block is at rest is 7 N. The coefficient of static friction $\mu$ is :

(1) $\dfrac{\sqrt{3}}{2}$          (2) $\dfrac{1}{\sqrt{6}}$          (3) $\sqrt{3}$          (4) $\dfrac{4}{3\sqrt{3}}$

**8.** A weight w is to be moved from the bottom to the top of an inclined plane of inclination $\theta$ to the horizontal. If a smaller force is to be applied to drag it along the plane in comparison to lift it vertically up, the coefficient of friction should be such that:

(1) $\mu > \tan\left(\dfrac{\pi}{4} - \dfrac{\theta}{2}\right)$     (2) $\mu < \tan\left(\dfrac{\pi}{4} - \dfrac{\theta}{2}\right)$     (3) $\mu < \tan\theta$     (4) $\mu > \tan\dfrac{\pi}{4}$

**9.** A block of mass 10 kg is kept on the fixed incline laving coefficient of friction 0.8 . Find the force of friction exerted on the block by inclined :
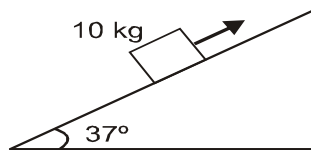


(1) 100 N          (2) 64 N          (3) 80 N          (4) 60 N

**10.** A block of mass 5 kg is on a rough horizontal surface and is at rest. Now a force of 24 N is imparted to it with negligible impulse. If the coefficient of kinetic friction is 0.4 and $g = 9.8\,m/s^2$, then the acceleration of the block is

(1) $0.26m/s^2$          (2) $0.39m/s^2$          (3) $0.69m/s^2$          (4) $0.88m/s^2$

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