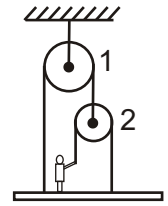


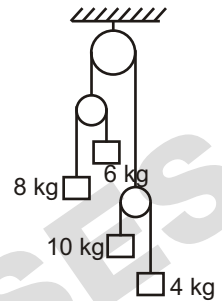
GRAVITY CLASSES

(PHYSICS)

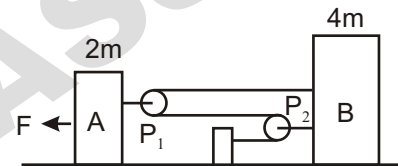
1. With what force  $f$  must a man pull on the rope shown in order to support the platform in which he stands, if mass of man is  $M = 60 \text{ kg}$  and mass of platform  $m = 20 \text{ kg}$  ?  
 With what force  $F$  does the man press the platform ? \_\_\_\_\_  
 What is the max.wt. of the platform that man can support ? \_\_\_\_\_



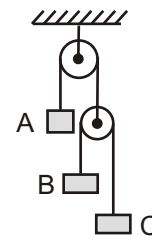
2. Calculate the acceleration of the pulleys B and C and the tension in the string passing over pulley A of the given Figure. \_\_\_\_\_



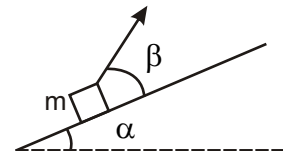
3. Calculate the acceleration of block B of figure, assuming surfaces and pulleys to be smooth \_\_\_\_\_



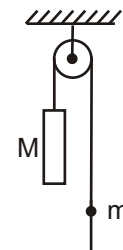
4. A system of masses and pulleys is arranged in a vertical plane as shown in figure. If  $m_A : m_B : m_C = 3 : 2 : 1$ . Find the accelerations \_\_\_\_\_



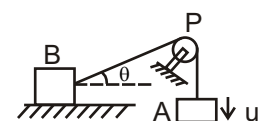
5. A bar of mass  $m$  is pulled by means of thread up an inclined plane forming an angle  $\alpha$  with horizontal. Coefficient of friction is  $\mu$ . Find  $\beta$  which thread must make with inclined plane for tension of thread to be minimum \_\_\_\_\_



6. In the arrangement shown, mass of rod  $M$  exceeds the mass  $m$  of ball. The ball has an opening permitting it to slide along thread with some friction. The mass of pulley and friction is its axle are negligible. At initial moment the ball was located opp. The lower end of rod. When set free both bodies begins moving with constant acceleration. Find friction force between ball & thread if  $t$  seconds after the beginning of motion the ball got opp. The upper end of rod. The rod length equals  $l$ . \_\_\_\_\_



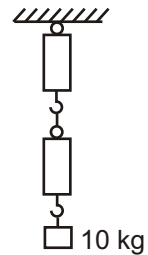
7. In this fig, the blocks are of equal masses the pulley is fixed. A moves down with speed  $u$ , and  $v_B$  be the speed of B \_\_\_\_\_



## GRAVITY CLASSES

8. A car accelerates on a horizontal rod due to force exerted by \_\_\_\_\_

9. A block of mass 10 kg is suspended through two light spring balances as shown in figure. The scales will read \_\_\_\_\_

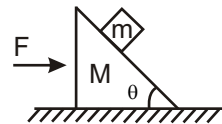


10. A force  $F_1$  acts on a particle so as to accelerate it from rest to velocity  $v$ . Force  $F_1$  is replaced by  $F_2$  which decelerates it to rest. The relation of  $F_1$  and  $F_2$  is \_\_\_\_\_

11. A person says that he measured the acceleration of a particle to be non-zero while no force was acting on the particle \_\_\_\_\_

12. A bar of mass  $m$  resting on a smooth horizontal plane starts moving due to force  $F = mg/3$  of constant magnitude. In the process of rectilinear motion the angle  $\alpha$ , between direction of force and horizontal varies as  $\alpha = as$ , Where  $a$  is constant, and  $S$  is the distance traversed by the bar from its initial position. Velocity of bar as a function of  $\alpha$  is \_\_\_\_\_

13. Answer the following questions :



Find the force 'F' for which

(A) Wedge of mass 'M' will not move ;  $F =$  \_\_\_\_\_

(B) Block of mass 'm' does not slip on the wedge ;  $F =$  \_\_\_\_\_

(C) Normal reaction b/w block of mass  $m$  & wedge of mass  $M$ ;

$N =$  \_\_\_\_\_. [Corresponding to part (A)]

(D) Repeat part (C) corresponding to part (B).  $N =$  \_\_\_\_\_

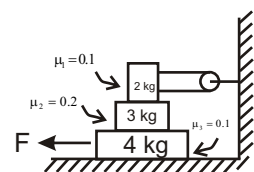
(E) Normal reaction b/w wedge and ground ;  $N =$  \_\_\_\_\_ [Corresponding to part (A)]

(F) Repeat part (E) corresponding to part (B).  $N =$  \_\_\_\_\_.

14. (A) Find the force 'F' for which block of mass 4 kg will start moving ;  $F =$  \_\_\_\_\_

(B) Find acceleration of mass 3 kg corresponding to part (A);

$A =$  \_\_\_\_\_.



15. If a mass  $m = 4$  kg is just fitted into a tube, where it is free to move; if friction coefficient  $= 0.1$   
Find the acceleration of mass 'm' if radius  $= 2m$  and tube is moving in horizontal plane.

$A =$  \_\_\_\_\_ (acceleration of mass 'm' with respect to tube.)

