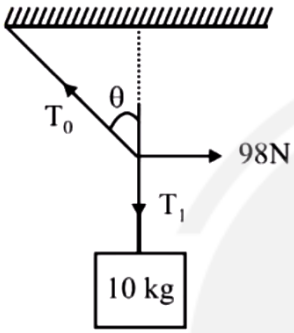
Yakeen NEET 2.0 2026

Physics By Saleem Sir

DPP: 2

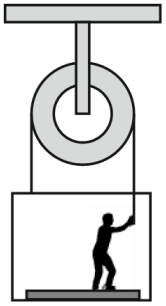
Laws of Motion

Q1 A mass of $10\ \text{kg}$ is suspended by a rope of length $2.8\ \text{m}$ from a ceiling. A force of $98\ \text{N}$ is applied at the midpoint of the rope as shown in figure. The angle which the rope makes with the vertical in equilibrium is:



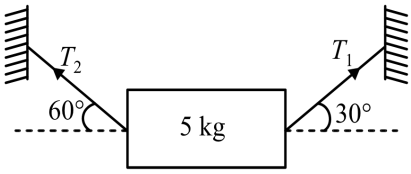
(A) 30°
(B) 60°
(C) 45°
(D) 90°

Q2 Figure shows a man of mass 50 kg standing on a light weighing machine kept in a box of mass 30 kg. The box is hanging from a pulley fixed to the ceiling through a light rope, the other end of which is held by the man himself. If the man manages to keep the box at rest, the weight shown by the machine is



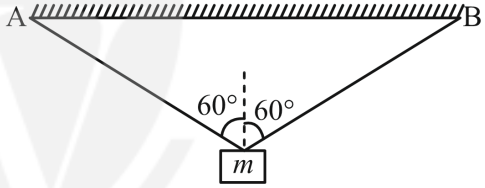
(A) 10 N
(B) 100 N
(C) 800 N
(D) 200 N

Q3 A body of mass 5 kg is suspended by the strings making angles 60° and 30° with the horizontal –



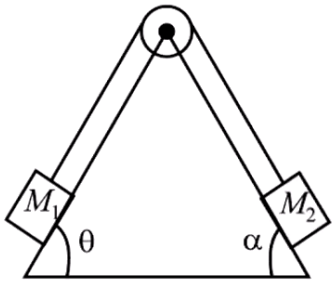
(a) $T_1 = 25$ N
(b) $T_2 = 25$ N
(c) $T_1 = 25\sqrt{3}$ N
(d) $T_2 = 25\sqrt{3}$ N
(A) a, b
(B) a, d
(C) c, d
(D) b, c

Q4 A massless string AB is loaded at its centre O by mass *m*. If its ends A and B are on the same horizontal line, then tension in the strings OA is



(A) $\frac{mg}{2}$
(B) mg
(C) $\frac{\sqrt{3}mg}{2}$
(D) $\frac{mg}{\sqrt{3}}$

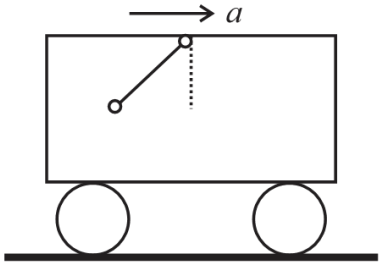
Q5 Two masses M_1 to M_2 connected by means of a string which is made to pass over light, smooth pulley are in equilibrium on a fixed smooth wedge as shown in figure. If $\theta = 60^\circ$ and $\alpha = 30^\circ$, then the ratio of M_1 to M_2 is



(A) $1:2$
(B) $2:\sqrt{3}$

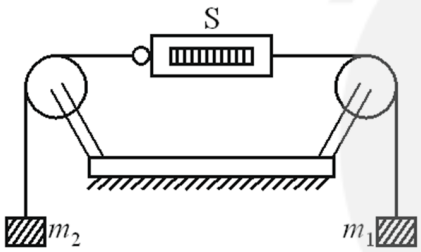
(C) $1 : \sqrt{3}$
(D) $\sqrt{3} : 1$

Q6 A pendulum bob is suspended in a Car moving horizontally with acceleration 'a' the angle the string will make with vertical is



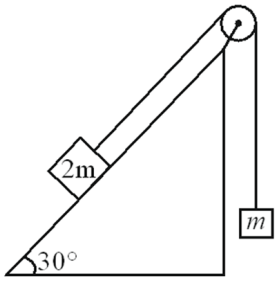
(A) $\tan^{-1}\frac{g}{a}$ (B) $\tan^{-1}\frac{a}{g}$
(C) $\sin^{-1}\frac{a}{g}$ (D) $\cos^{-1}\frac{a}{g}$

Q7 In the arrangement shown, the pulleys are fixed and ideal, the string are light, $m_1 > m_2$ and S is a spring balance which is itself massless. The reading of S (in units of mass) is



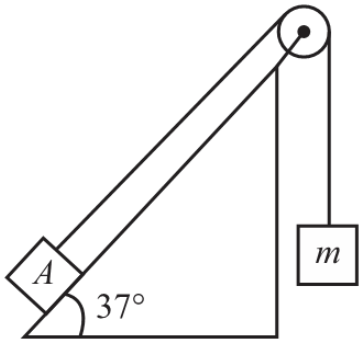
(A) $m_1 - m_2$ (B) $\frac{1}{2}(m_1 + m_2)$
(C) $\frac{m_1 m_2}{m_1 + m_2}$ (D) $\frac{2m_1 m_2}{m_1 + m_2}$

Q8 For the arrangement shown in the figure, the tension is the string is given by



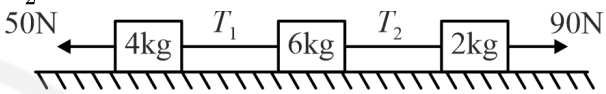
(A) $\frac{mg}{2}$ (B) mg
(C) $\frac{3mg}{2}$ (D) $2mg$

Q9 In the figure, what should be mass m so that block A of mass 10 kg slides up with a constant velocity?



(A) 2 *kg* (B) 6 *kg*
(C) 3 *kg* (D) 4 *kg*

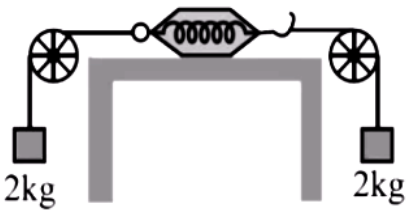
Q10 In the figure shown, surface is frictionless. Forces are applied as shown in figure, then find tension T_2.



(A) $\frac{250}{3}N$
(B) $\frac{190}{3}N$
(C) $90\ \mathrm{N}$
(D) $50\ \mathrm{N}$

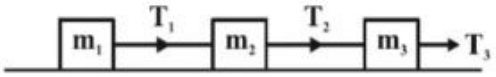
Q11 Two blocks of masses $2\ \mathrm{kg}$ and $1\ \mathrm{kg}$ are in contact with each other on a frictionless table. When a horizontal force of $3.0\ \mathrm{N}$ is applied to the block of mass $2\ \mathrm{kg}$ the value of the force of contact between
(A) $4\ \mathrm{N}$
(B) $3\ \mathrm{N}$
(C) $5\ \mathrm{N}$
(D) $1\ \mathrm{N}$

Q12 As shown in the figure, two equal masses each of $2\ \mathrm{kg}$ are suspended from a spring balance. The reading of the spring balance will be



(A) Zero
(B) $2\ \mathrm{kg}$
(C) $4\ \mathrm{kg}$
(D) Between zero and $2\ \mathrm{kg}$

Q13 Three blocks of masses m_1, m_2 and m_3 are connected by massless string as shown kept on a frictionless table.They are pulled with a force $T_3 = 40\ \text{N}$. If $m_1 = 10\ \text{kg}, m_2 = 6\ \text{kg}$ and $m_3 = 4\ \text{kg}$, the tension T_2 will be



(A) $20\ \text{N}$
(B) $40\ \text{N}$
(C) $10\ \text{N}$
(D) $32\ \text{N}$

Answer Key

Q1	(C)
Q2	(B)
Q3	(B)
Q4	(B)
Q5	(C)
Q6	(B)
Q7	(D)
Q8	(B)
Q9	(B)
Q10	(A)
Q11	(D)
Q12	(B)
Q13	(D)