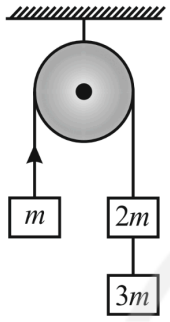
Yakeen NEET 2.0 2026

Physics By Manish Raj Sir

Laws of Motion

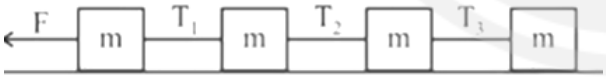
DPP: 3

Q1 In the figure given below, with what acceleration does the block of mass m will move? (Pulley and strings are massless and frictionless)



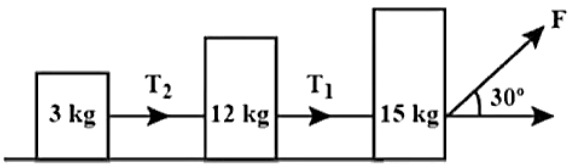
(A) $\frac{g}{3}$
(B) $\frac{2g}{5}$
(C) $\frac{2g}{3}$
(D) $\frac{g}{2}$

Q2 Four blocks of same mass connected by cords are pulled by forces F on a smooth horizontal surface, as in figure. The tension T_1, T_2 and T_3 will be-



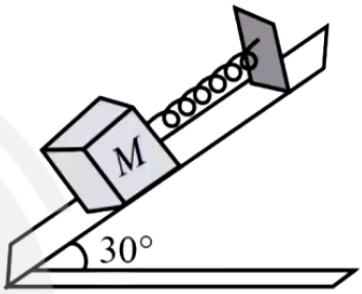
(A) $T_1 = F/4, T_2 = 3\,\mathrm{F}/2, T_3 = F/4$
(B) $\mathrm{T_1} = \mathrm{F}/4,\ \mathrm{T_2} = 3\,\mathrm{F}/2,\ \mathrm{T_3} = \mathrm{F}/2$
(C) $\mathrm{T_1} = 3\,\mathrm{F}/4,\ \mathrm{T_2} = \mathrm{F}/2,\ \mathrm{T_3} = \mathrm{F}/4$
(D) $\mathrm{T_1} = 3\,\mathrm{F}/4,\ \mathrm{T_2} = \mathrm{F}/2,\ \mathrm{T_3} = \mathrm{F}/2$

Q3 The surface is frictionless, the ratio of T_1 and T_2 is :-



(A) $\sqrt{3} : 1$
(B) $1 : \sqrt{3}$
(C) $1 : 5$
(D) $5 : 1$

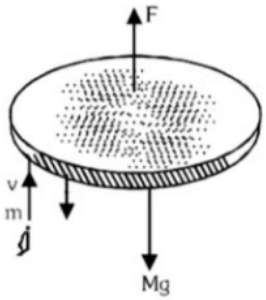
Q4 A body of mass $5\ \mathrm{kg}$ is suspended by a spring balance on an inclined plane as shown in figure. The spring balance measure



(A) $50\ \mathrm{N}$
(B) $25\ \mathrm{N}$
(C) $500\ \mathrm{N}$
(D) $10\ \mathrm{N}$

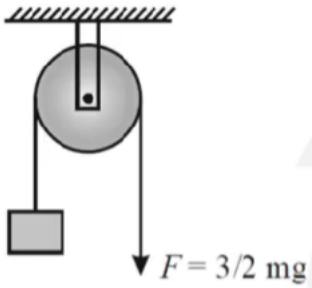
Q5 A body of mass $2\ \mathrm{kg}$ is moving with a velocity $8\ \mathrm{m/s}$ on a smooth surface. If it is to be brought to rest in 4 seconds, then the force to be applied is
(A) $8\ \mathrm{N}$
(B) $4N$
(C) $2N$
(D) $1\ \mathrm{N}$

Q6 A disc of mass $1.0\ \mathrm{kg}$ is kept floating horizontally in air by firing bullets of mass $0.05\ \mathrm{kg}$ each vertically at it, at the rate of 10 per second. If the bullets rebound with the same speed, the speed with which these are fired will be



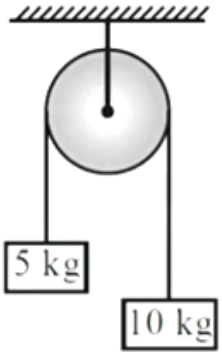
(A) $0.098\ \mathrm{m/s}$
(B) $0.98\ \mathrm{m/s}$
(C) $9 \cdot 8\ \mathrm{m/s}$
(D) $98.0\ \mathrm{m/s}$

Q7 In the arrangement shown, the mass m will ascend with an acceleration (Pulley and rope are massless)



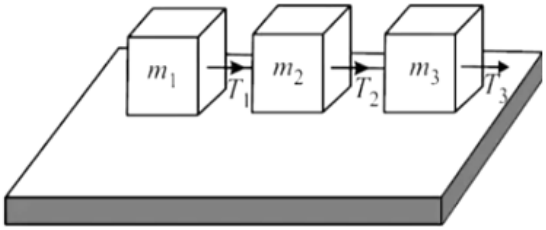
(A) Zero
(B) $\frac{g}{2}$
(C) g
(D) $2g$

Q8 Two masses as shown are suspended from a massless pulley. Calculate the acceleration of the 10 kg mass when masses are free



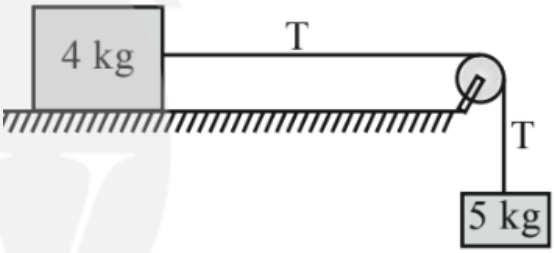
(A) $\frac{2g}{3}$
(B) $\frac{g}{3}$
(C) $\frac{g}{9}$
(D) $\frac{g}{7}$

Q9 Three blocks of masses m_1, m_2 and m_3 are connected by massless strings as shown on a frictionless table. They are pulled with a force $T_3 = 40\ \mathrm{N}$. If $m_1 = 10\ \mathrm{kg}, m_2 = 6\ \mathrm{kg}$ and $m_3 = 4\ \mathrm{kg}$, the tension T_2 will be



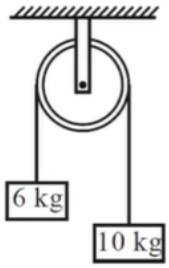
(A) 20 N
(B) 40 N
(C) 10 N
(D) 32 N

Q10 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) $\frac{g}{4}$
(C) $\frac{4g}{9}$
(D) $\frac{5g}{9}$

Q11 A light string passes over a frictionless pulley. To one of its ends a mass of $6\ \mathrm{kg}$ is attached and to its other end a mass of $10\ \mathrm{kg}$ is attached. The tension in the string will be



(A) $50\ \mathrm{N}$
(B) $75\ \mathrm{N}$
(C) $100\ \mathrm{N}$
(D) $150\ \mathrm{N}$

Q12

A block of mass m_1 rests on a horizontal table. A string tied to the block is passed on a frictionless pulley fixed at the end of the table and to the other end of string is hung another block of mass m_2. The acceleration of the system is

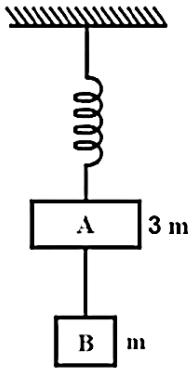
(A) $\frac{m_2 g}{(m_1+m_2)}$

(B) $\frac{m_1 g}{(m_1+m_2)}$

(C) g

(D) $\frac{m_2 g}{m_1}$

Q13 Two blocks A and B of masses $3\ \mathrm{m}$ and m respectively are connected by a massless and inextensible string. The whole system is suspended by a massless spring as shown in figure. The magnitudes of acceleration of A and B immediately after the string is cut, are respectively



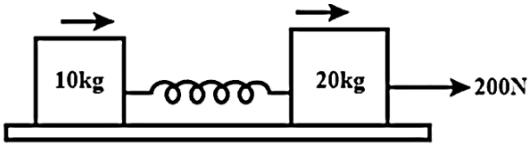
(A) $\frac{g}{3}, g$

(B) g, g

(C) $\frac{g}{3}, \frac{g}{3}$

(D) $\mathrm{g}, \frac{g}{3}$

Q14 Two masses of $10\ \mathrm{kg}$ and $20\ \mathrm{kg}$ respectively are connected by a massless spring as shown in the figure. A force of $200\ \mathrm{N}$ acts on the $20\ \mathrm{kg}$ mass. At the instant shown, the $10\ \mathrm{kg}$ mass has an acceleration of $4\ \mathrm{m/s^2}$ rightwards. What is the acceleration of $20\ \mathrm{kg}$ mass ?



(A) Zero

(B) $10\ m/s^2$

(C) $4\ \mathrm{m/s^2}$

(D) $8\ \mathrm{m/s^2}$

Answer Key

Q1	(C)	Q8	(B)
Q2	(C)	Q9	(D)
Q3	(D)	Q10	(D)
Q4	(B)	Q11	(B)
Q5	(B)	Q12	(A)
Q6	(C)	Q13	(A)
Q7	(B)	Q14	(D)