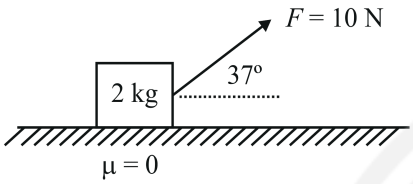
# Yakeen NEET 2.0 2026

## Physics by Saleem Sir

## Work, Energy and Power

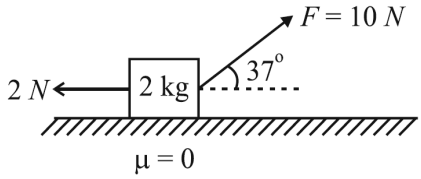
DPP: 2

**Q1** A force of $10\ \mathrm{N}$ is applied on a block of mass $2\ \mathrm{kg}$ at an angle of $37^\circ$, as shown in the figure. If at $t = 0, \mathrm{u} = 0$, then find the work done by the force in $2\ \mathrm{s}$, given that all the surfaces are smooth.



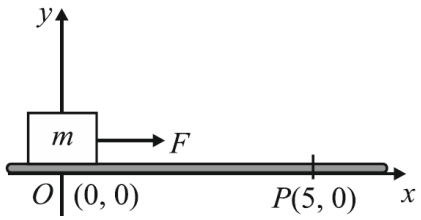

(A) $48\ \mathrm{J}$
(B) $64\ \mathrm{J}$
(C) $80\ \mathrm{J}$
(D) $96\ \mathrm{J}$

**Q2** A force of 10 *N* at an angle of 37° and a force of 2 *N* is applied on a block of mass 2 kg, as shown in the figure. All the surfaces are smooth. If at $t$ = 0, $u$ = 0, then the total work done on the block in 2 *s*:



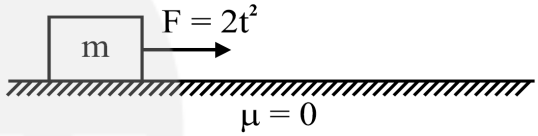

(A) 20 J
(B) 48 J
(C) 36 J
(D) 64 J

**Q3** A block of mass m is placed at origin (0, 0) and a force, F = (2x + 2) N, is applied on the block so that it reaches at some other point, P (5, 0). Find the work done by the force.



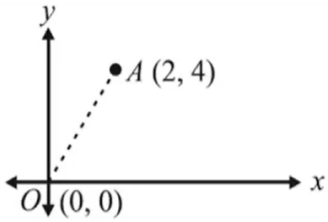

(A) 35 J
(B) 30 J
(C) 15 J
(D) 21 J

**Q4** A force, F = $2t^2$, is applied on a block of mass m at rest as shown in the figure. Find the work done by the force in time $t_0$ s.




(A) $\frac{2t_0^6}{9m}$
(B) $\frac{9t_0^6}{4m}$
(C) $\frac{4t_0^6}{6m}$
(D) $\frac{3t_0^6}{10m}$

**Q5** A force, $\vec{F} = x^2\hat{i} + y\hat{j}$, acts on a particle. The particle starts from point $O(0, 0)$ and moves to point $A(2, 4)$. Find the total work done by force. $\vec{F}$ on the particle.




(A) $\frac{32}{3}J$
(B) $\frac{21}{4}J$
(C) $\frac{16}{9}J$
(D) $\frac{18}{7}$ J

**Q6** A block of mass $5\ \mathrm{kg}$ is being raised vertically upwards
by the help of a string attached to it. It rises with an

acceleration of $2\ \mathrm{ms}^{-2}$. Find the work done by the
tension in the string if the block rises by $2.5\ \mathrm{m}$.

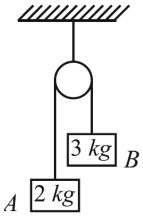
(A) $150\ \mathrm{J}$

(B) $50\ \mathrm{J}$

(C) $125\ \mathrm{J}$

(D) $100\ \mathrm{J}$

**Q7** If the system shown is released from rest. Find the
net workdone by tension in first one second
$(g = 10\ \mathrm{m/s^2})$




(A) $10\ \mathrm{J}$

(B) $5\ \mathrm{J}$

(C) $1\ \mathrm{J}$

(D) $0\ \mathrm{J}$

**Q8** A position dependent force $F = 7 - 2x + 3x^2$ newton acts on a small body of mass 2 *kg* and displaces it form $x = 0$ to $x = 5$ m. The work done in joules is:

(A) 70 (B) 270
(C) 35 (D) 135

**Q9** A block of mass $5\ \mathrm{kg}$ initially at rest at the origin is
acted upon by a force along the positive $x$-direction
represented by $F = (20 + 5x)\mathrm{N}$. Calculate the work
done by the force during the displacement of the block from $x = 0$ to $x = 4\ \mathrm{m}$.

(A) $100\ \mathrm{J}$

(B) $150\ \mathrm{J}$

(C) $120\ \mathrm{J}$

(D) $75\ \mathrm{J}$

**Q10** The relationship between the force F and position x of a body is as shown in figure. The work done in displacing the body from x = 1 m to x = 5 m will be


(A) 30 J (B) 15 J
(C) 25 J (D) 20 J

**Q11** A force $\vec{F} = \left(3x^2 + 2x - 7\right)N$ acts on a 2 *kg* body as a result of which the body gets displaced from $x = 0$ to $x = 5$ *m*. The work done by the force will be:

(A) 35 *J* (B) 70 *J*
(C) 115 *J* (D) 270 *J*

# Answer Key

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