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Tamanna Chaudhary
(Physics Expert)



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Tamanna Chaudhary

Expert in NEET UG

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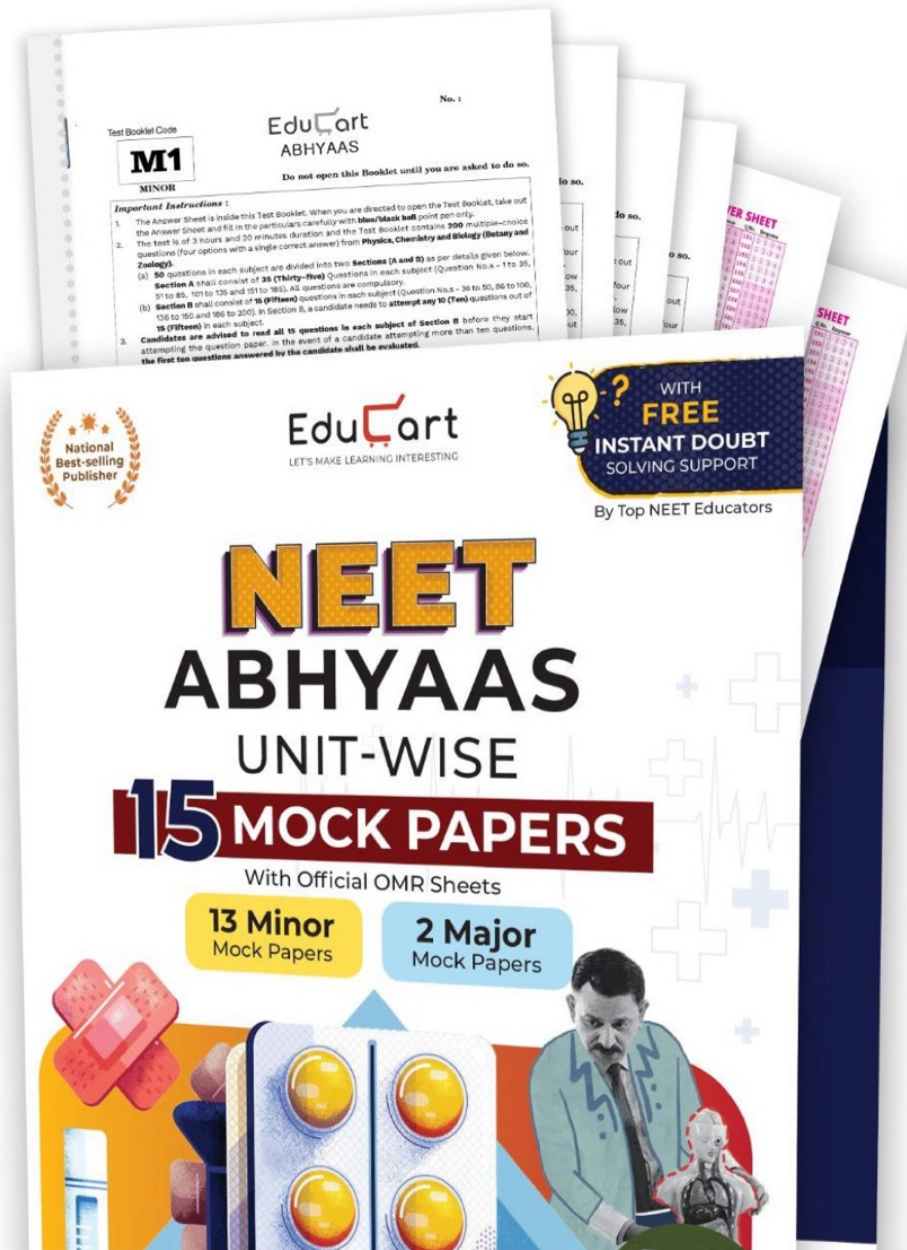
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A lorry of mass 2000 kg is travelling up a hill of certain height at a constant speed of 10 m/s. The frictional resistance is 200 N, then the power expended by the engine is approximately : (take $g = 10 \text{ m/s}^2$)

- (a) 22 kW
- (b) 220 kW
- (c) 2000 W
- (d) none of these



ALL QUESTIONS in this lecture is important



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A wind powered generator converts wind energy into electrical energy. Assume that the generator converts a fixed fraction of the wind energy intercepted by its blades into electrical energy for wind speed v , the electrical power output will be proportional to :

- (a) v
- (b) v^2
- (c) v^3
- (d) v^4



A motor boat is travelling with a speed of 3.0 m/sec . If the force on it due to water flow is 500 N , the power of the boat is

- A) 150 kW
- B) 15 kW
- C) 1.5 kW
- D) 150 W



A weight lifter lifts 300 kg from the ground to a height of 2 meter in 3 second. The average power generated by him is

- A) 5880 watt
- B) 4410 watt
- C) 2205 watt
- D) 1960 watt



From a waterfall, water is falling down at the rate of 100 kg/s on the blades of turbine. If the height of the fall is 100 m , then the power delivered to the turbine is approximately equal to
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- A) 100 kW
- B) 10 kW
- C) 1 kW
- D) 1000 kW



A car of mass 1250 kg is moving at 30m/s. Its engine delivers 30 kW while resistive force due to surface is 750N. What max acceleration can be given in the car

A) $\frac{1}{3} m/s^2$

B) $\frac{1}{4} m/s^2$

C) $\frac{1}{5} m/s^2$

D) $\frac{1}{6} m/s^2$



A truck of mass 30,000kg moves up an inclined plane of slope 1 in 100 at a speed of 30 kmph. The power of the truck is (given $g = 10ms^{-1}$)

- A) 25 kW
- B) 10 kW
- C) 5 kW
- D) 2.5 kW



An engine pumps up 100 kg of water through a height of 10 m in 5 s. Given that the efficiency of the engine is 60% . If $g = 10ms^{-2}$, the power of the engine is

- A) $3.3kW$
- B) $0.33kW$
- C) $0.033kW$
- D) $33kW$



An engine pump is used to pump a liquid of density ρ continuously through a pipe of cross-sectional area A . If the speed of flow of the liquid in the pipe is v , then the rate at which kinetic energy is being imparted to the liquid is

- A) $\frac{1}{2} A \rho v^3$
- B) $\frac{1}{2} A \rho v^2$
- C) $\frac{1}{2} A \rho v$
- D) $A \rho v$



A body of mass m is accelerated uniformly from rest to a speed v in a time T . The instantaneous power delivered to the body as a function of time is given by

A) $\frac{mv^2}{T^2} \cdot t^2$

B) $\frac{mv^2}{T^2} \cdot t$

C) $\frac{1}{2} \frac{mv^2}{T^2} \cdot t^2$

D) $\frac{1}{2} \frac{mv^2}{T^2} \cdot t$



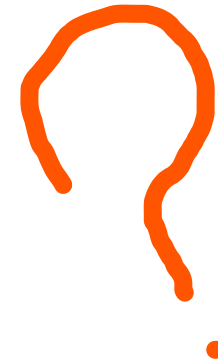
If a machine gun fires n bullets per second each with kinetic energy K , then the power of the machine gun is

A) nK^2

B) $\frac{K}{n}$

C) $n^2 K$

D) nK



A force applied by an engine of a train of mass $2.05 \times 10^6 \text{ kg}$ changes its velocity from 5m/s to 25 m/s in 5 minutes. The power of the engine is

- A) 1.025 MW
- B) 2.05 MW
- C) 5 MW
- D) 6 MW

