

The Doctors' INN...The Engineers' INN

Numerical Test

Compiled By:Engr Shair Hassan

1. An object of mass 2 kg has a linear momentum of magnitude $6 \text{ kg} \cdot \text{m/s}$. What is this object's kinetic energy?
(A) 3 J
(B) 6 J
(C) 9 J
(D) 12 J
(E) 18 J
2. A ball of mass 0.5 kg, initially at rest, acquires a speed of 4 m/s immediately after being kicked by a force of strength 20 N. For how long did this force act on the ball?
(A) 0.01 s
(B) 0.02 s
(C) 0.1 s
(D) 0.2 s
(E) 1 s
3. A box with a mass of 2 kg accelerates in a straight line from 4 m/s to 8 m/s due to the application of a force whose duration is 0.5 s. Find the average strength of this force.
(A) 2 N
(B) 4 N
(C) 8 N
(D) 12 N
(E) 16 N
4. Under the influence of a force, an object of mass 4 kg accelerates from 3 m/s to 6 m/s in 8 s. How much work was done on the object during this time?
(A) 27 J
(B) 54 J
(C) 72 J
(D) 96 J
(E) Cannot be determined from the information given
5. While a person lifts a book of mass 2 kg from the floor to a tabletop, 1.5 m above the floor, how much work does the gravitational force do on the book?
(A) -30 J
(B) -15 J
(C) 0 J
(D) 15 J
(E) 30 J
6. A block of mass 3 kg slides down a frictionless inclined plane of length 6

m and height 4 m. If the block is released from rest at the top of the incline, what is its speed at the bottom?

- (A) 5 m/s
(B) 6 m/s
(C) 8 m/s
(D) 9 m/s
(E) 10 m/s
7. A force of 200 N is required to keep an object sliding at a constant speed of 2 m/s across a rough floor. How much power is being expended to maintain this motion?
(A) 50 W
(B) 100 W
(C) 200 W
(D) 400 W
(E) Cannot be determined from the information given
8. If a 60-watt lightbulb operates at a voltage of 120 V, what is the resistance of the bulb?
(A) 2
(B) 30
(C) 240
(D) 720
(E) 7,200
9. How much energy is dissipated as heat in 20 s by a 100 resistor that carries a current of 0.5 A ?
(A) 50 J
(B) 100 J
(C) 250 J
(D) 500 J
(E) 1,000 J
10. Determine the equivalent resistance between points *a* and *b*.
(A) 0.167
(B) 0.25
(C) 0.333
(D) 1.5
(E) 2.0

