PYQs from WORK, POWER AND ENERGY(2014-2024)

. Which one among the following happens when a swing rises to a certain height from its rest position ?

(a) Its potential energy decreases while kinetic energy increases

(b) Its kinetic energy decreases while potential energy increases

(c) Both potential and kinetic energy decrease

(d) Both potential and kinetic energy increase

The impulse on a particle due to a force acting on it during a given time interval is equal to the change in its

(a) force

(b) momentum

(c) work done

(d) energy

The power required to lift a mass of 8·0 kg up a vertical distance of 4 m in 2 s is (taking acceleration due to gravity as 10 m/s^2) :

(a) 80 W

(b) 160 W

(c) 320 W

(d) 640 W

Two forces of 5·0 N each are acting on a point mass. If the angle between the forces is 60°, then the net force acting on the point mass has magnitude close to :

(a) 8·6 N

(b) 4·3 N

(c) 5·0 N

(d) 6·7 N

5. In SI unit of force 'Newton' (N) is given by (where m stands for metre and s stands for second):

(a) $1\ N = 1\ kg/ms^2$

(b) $1\ N = 1\ kgm/s^2$

(c) $1\ N = 1\ kg\ s^2/m$

(d) $1\ N = 1\ kg\ m\ s^2$

The dimension of 'impulse' is the same as that of

(a) pressure

(b) angular momentum

(c) work

(d) linear momentum

. Which one of the following is the value of 1 kWh of energy converted into joules ?

(a) $1{\cdot}8 \times 10^6$ J

(b) $3{\cdot}6 \times 10^6$ J

(c) $6{\cdot}0 \times 10^6$ J

(d) $7{\cdot}2 \times 10^6$ J

. One kilowatt hour is equal to

(a) 36×10^3 joule

(b) 36×10^5 joule

(c) 10^3 joule

(d) 10^5 joule

The force acting on a particle of mass m moving along the x-axis is given by $F(x) = Ax^2 - Bx$. Which one of the following is the potential energy of the particle ?

(a) $2Ax - B$

(b) $-\frac{x^2}{6}(2Ax - 3B)$

(c) $Ax^3 - Bx^2$

(d) Zero

. Work is said to be one Joule when a force of

(a) 4 N moves an object by 25 cm.

(b) 2 N moves an object by 1 m.

(c) 1 N moves an object by 1 cm.

(d) 1 N moves an object by 50 cm.

. A negative work is done when an applied force **F** and the corresponding displacement **S** are

(a) perpendicular to each other.

(b) parallel to each other.

(c) anti-parallel to each other.

(d) equal in magnitude.