Lecture 9:
Al-Mustaqbal University
College of Science
Department of Medical Physics

Lecturers
Dr. Anees Ali
Dr. Ahed Hameed

Define mechanical energy of the system

The mechanical energy of the system is defined as the total kinetic energy plus the total potential energy.

Is kinetic energy conserved in elastic collisions?

Yes, kinetic energy is conserved in elastic collisions.

Name the device which converts electrical energy into mechanical energy

Electric motor.

Give an example where heat energy is converted into mechanical energy?

Heat engine.

What is the formula of conservation of mechanical energy?

Ans: The formula representing the conservation of mechanical energy is $E_m = E_p + E_k = mgh + \frac{1}{2}mv^2 = Constant$

Example 1: An object of mass 200g *is raised to a height* 5m5m *above the ground. Calculate it potential energy at this height. If the object is made to fall, what will be its kinetic energy halfway down? Take* $g=10ms^2g=10ms^2$.

Solution: Given

that, The mass of the object is

m=200g =0.2kgm=

The height of the object is

h=5m

The acceleration due to gravity is $g=10m/s^2$
The potential energy of the object at the height is
P.E=mgh=0.2×10×5=10J

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Q/ The acceleration due to gravity is --------.

a) Zero
b) 10 m.s^2
c) 10 m^2.s
d) **g = 10 m/s^2**

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