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ENERGY

CHAPTER NO.3

SUB: PHYSICS

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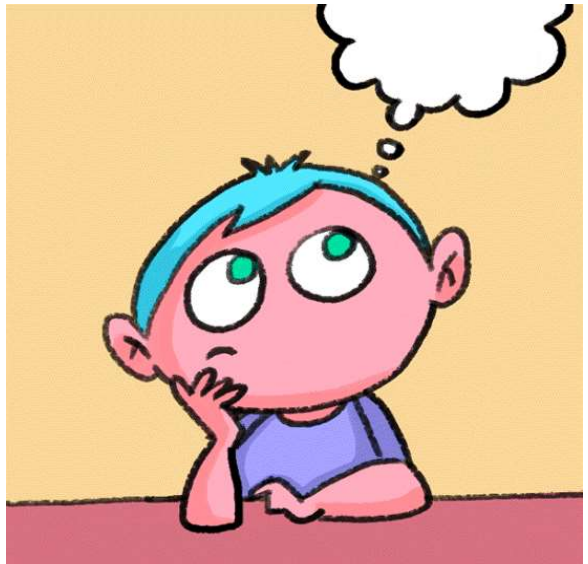
LEARNING OBJECTIVE

Students will be able

- ✓ Conservation of energy
- ✓ Know production of hydro electricity



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Law of Conservation of Energy

The law of conservation of energy states that “In a closed system, i.e., a system that is isolated from its surroundings, the total energy of the system is conserved.”

According to the law, the total energy in a system is conserved even though the transformation of energy occurs.

Energy can neither be created nor destroyed, it can only be converted from one form to another.

ROLLER COASTER

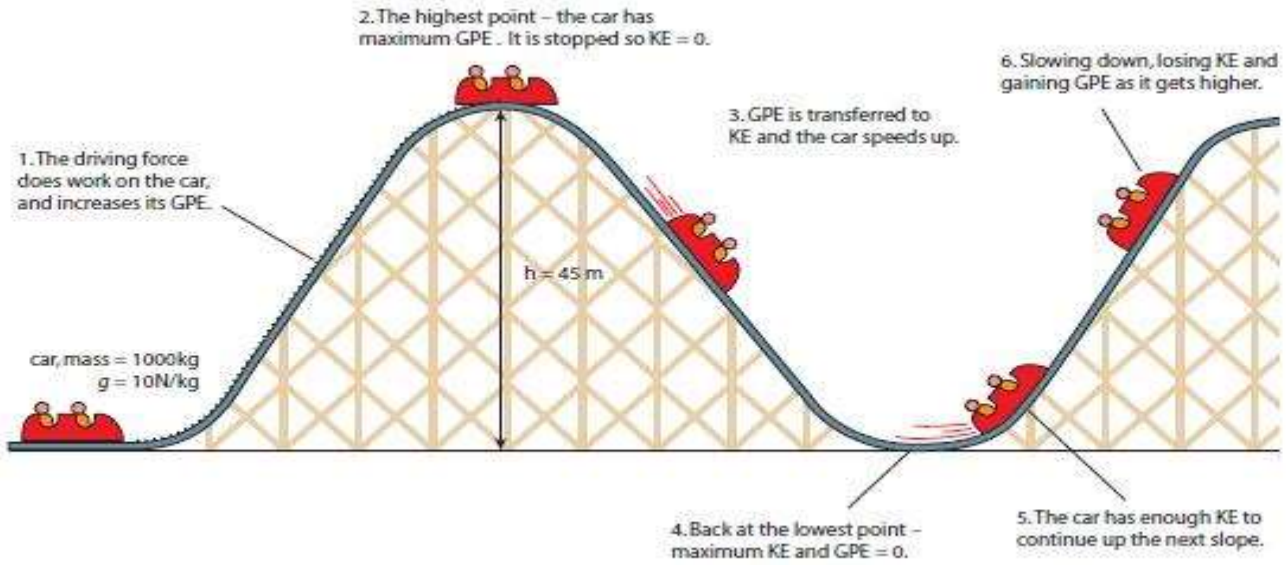
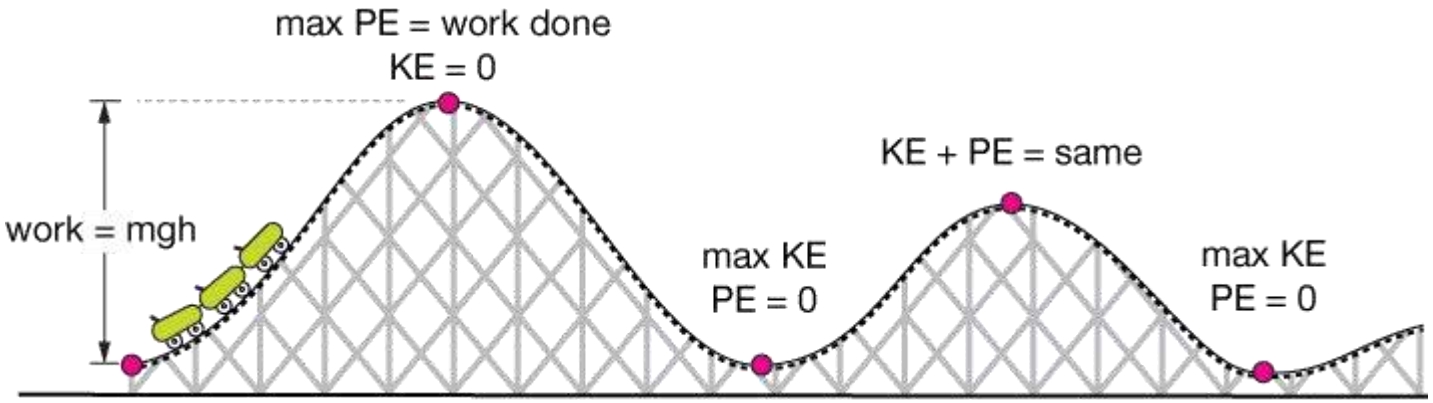


Fig. 9.16 Transferring energy from GPE to KE and back again.



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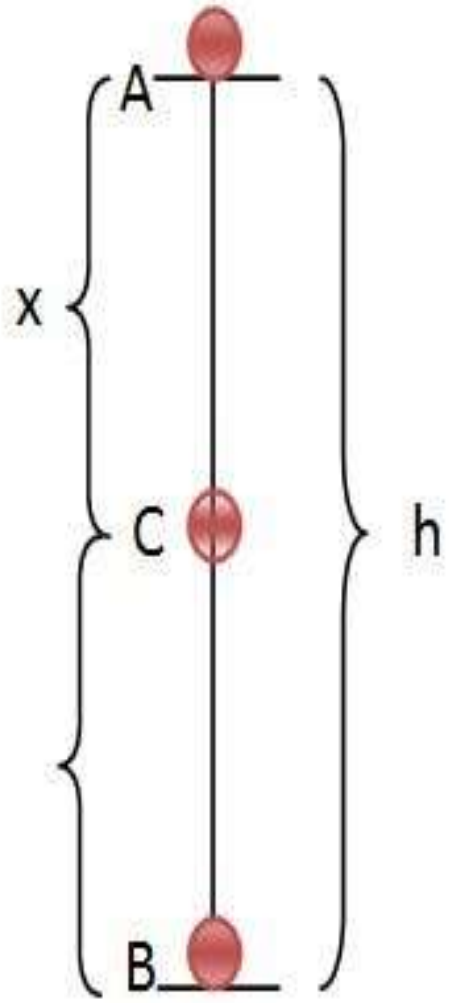
A VERTICALLY FALLING BALL



At point A

$PE = mgh$

$KE = 0$

$T.E = mgh \text{------}(1)$

At point B

$PE = mg(h-x)$

$KE = \frac{1}{2}M\vartheta_1^1 \qquad \left(V_1^2 - (0) = 2gx\right)$

$KE = \frac{1}{2}M \times 2gx$

$KE = mgx$

$TE = mgh - mgx + mgx$

$TE = mgh \text{-------}(2)$

At point C

$P.E. = 0$

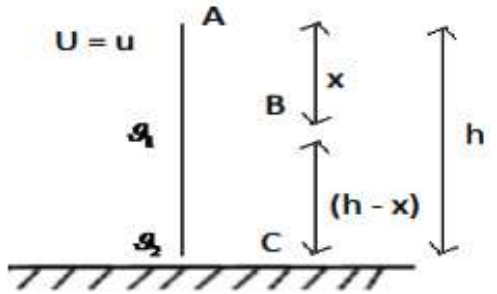
$KE = \frac{1}{2}M\upsilon_2^2$

$\left(\upsilon_2^2 - (0) = 2g(h)\right)$

$KE = \frac{1}{2}M(2hg)$

$KE = mgh$

$ThusT.E = mgh - (3)$



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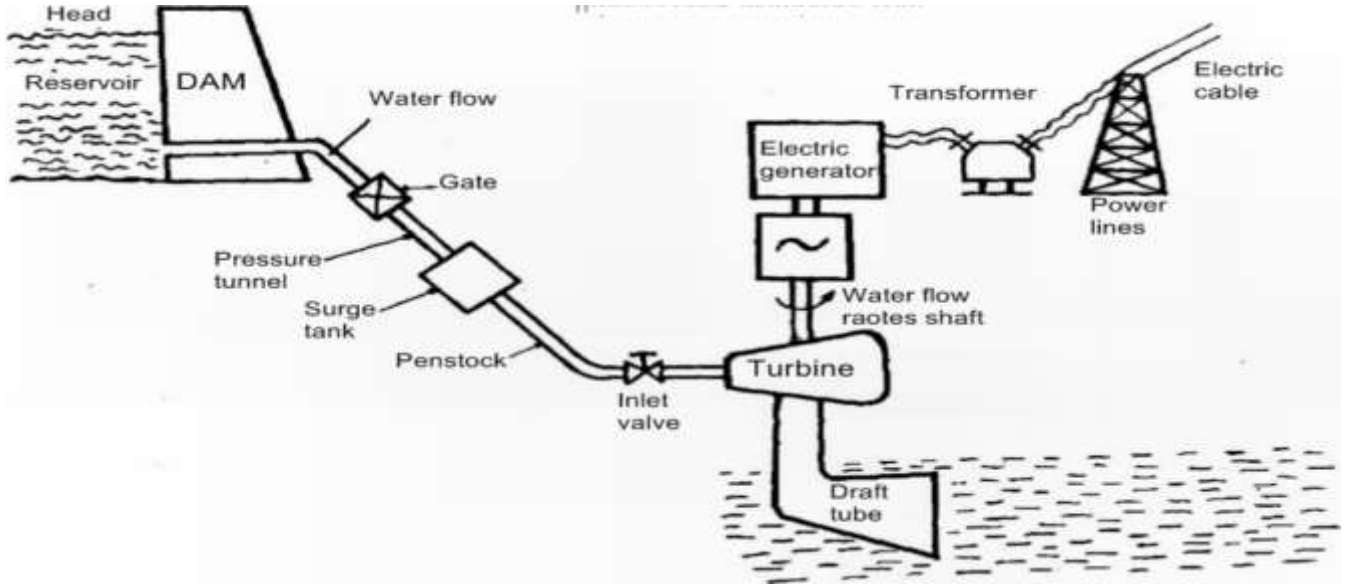
PRODUCTION OF HYDRO ELECTRICITY

Hydroelectricity

Hydroelectricity refers to the generation of electrical power by the use of hydropower. Hydropower here mainly is the gravitational force of falling water.



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HOME ASSIGNMENT

Text Book Exercise

Q NO.21,22,24

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