PHYSICS

CLASS -9

CHAPTER-FOUR

WORK, POWER AND ENERGY.

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What is Work?

Work is said to be done when a body or object moves with the application of external force. We can define work as an activity involving a movement and force in the direction of the force. For example, a force of 20 newtons (N) pushing an object 3 meters in the same direction of the force will do 60 joules (J) of work.

Formula of Work

When we kick a football, we are exerting an external force called F, and due to this force (kick), the ball moves to a certain distance. This disposition of ball from position A to B is known as displacement (s). This work is said to be done and can be calculated as $W = F \times s$.

Unit of Work

If a force of 10newtons is applied to an object and it moves 2 meters, the work will be 20 newton-meter. Newton meter in termed and Joules and it is the unit of Work.

Example of work

An object is horizontally dragged across the surface by a 100 N force acting parallel to the surface. Find out the amount of work done by the force in moving the object through a distance of 8 m

We know that,

F = 100 N

s= 8 m

Since F and s are in the same direction,

θ = 0, [θ is the angle of the force to the direction of movement]

$W = Fs \cos \theta$

$= 100 \times 8 \times \cos 0$

$= 800$ J [Since $\cos 0 = 1$]

Work	
Definition	Work is said to be done when a force applied to an object moves that object.
Formula	We can calculate work by multiplying the force by the movement of the object. $W = F \times d$
Unit	The SI unit of work is the joule (J)

H/W-

1. Definition of work.
2. What is positive work?
3. What is negative work?
4. What is the Formula of work?
5. What is the unit of work?
6. What is the dimension of work?
7. A man applied a 10 N force and displace a object 5 m towards the force. Find the amount of done by the man?
8. Solve the Example of text book.Pg-100.

Thank You.