

Physics - ICS Part 1 Physics Chapter 4 Short Questions Test

Q1. How sunlight is directly converted into electricity by solar cells?

Ans 1: By using semiconductor devices, the solar cell also called photo voltaic cell, sunlight can be directly converted into electricity. These solar cells are made of silicon wafers. Electron in the silicon gain energy from sunlight to create a voltage. Voltage can be increased by increasing the number of solar cells.

Q2. How can you get energy from the waves?

Ans 1: The tides and winds blow across the surface of ocean due to which strong water waves are produced. Professor Salter invented a device called Salter's duck. It has two parts: duck float and balance float. The wave energy produces the movement in duck float relative to balance float. The relative motion of duck float can be used to run electricity generators.

Q3. How energy can be obtained from waste products?

Ans 1: Waste products like wood waste, crop residue, and municipal solid waste is burnt in a confined container. Heat produced in this way is directly utilized in the boiler to produce steam that can run turbine generator.

Q4. What is geothermal energy? How is it generated ?

Ans 1: The heat energy extracted from inside the Earth in the form of steam or hot water is called geothermal energy. It can be generated by the following processes

- Radioactive Decay
- Residual Heat of Earth
- Compression of Material

Q5. An object has one joule of potential energy. Explain what it means.

Ans 1: It means that work has been done on the body by the force of 1 N which has lifted the body through a distance of 1 m. This work has been stored in the body in the form of P.E. Which is 1J.

Q6. Define and explain work ?

Ans 1: Work: The scalar product of force and displacement is known as work.

Explanation: Consider a force 'F' is acting on a body of mass 'm' and moves it from point 'A' to point 'B' through a displacement 'd'

Work = Force * displacement

$W = F \cdot d \cos \theta$

Q7. A boy uses a catapult to throw a stone which accidentally smashes a greenhouse window. What energy changes are involved?

Ans 1: Initially, the catapult had elastic P.E when the stone is thrown, its P.E is converted into K.E On striking the window, this energy is converted into sound energy, heat energy work done in breaking the window into pieces and kinetic energy of pieces.

Q8. What are the essential conditions for conservative field?

Ans 1: For a field to be conservative, energy should be conserved and work should be independent of the path followed. As in case of work done along a path in the gravitational field of earth.

Q9. What is 'Aquifer'?

Ans 1: Aquifer is a layer of rock holding water that allows water to percolate through it with pressure.

Q10. Define power and instantaneous power?

Ans 1: Power: The power of doing work is known as power. It is represented by 'P' and is given by

Power = work/time

$P = w/t$

Instantaneous Power: The rate of doing work in the limit when 't' approaches to zero is known as instantaneous power.
