

Answer on Question #57431, Physics / Other

1. Which of the following is a scientific law?
 - a. Evolution of man
 - b. Energy is neither created nor destroyed
 - c. Duality of matter
 - d. Existence of worm holes in the universe

Solution:

The law of conservation of energy.

This states that energy can be neither created nor destroyed.

Answer: b. Energy is neither created nor destroyed

2. Which of the following is a theory?
 - a. The speed of light is constant
 - b. Water has oxygen and hydrogen
 - c. The earth is round
 - d. Electron sometimes behaves like a wave

Solution:

One of the fundamental postulates of the theory of relativity is that the speed of light is constant in all reference frames.

Answer: a. The speed of light is constant

3. Which of the following cannot be answered by science?
 - a. The age of the solar system
 - b. The speed of light
 - c. The mass of the electron
 - d. The existence of the devil

Answer: d. The existence of the devil

4. Weak force is illustrated by
 - a. A man climbing a tree
 - b. Radioactivity
 - c. Van Allen's belt
 - d. Quarks in the proton

Solution:

The radioactive beta decay is possibly due to the weak interaction, which transforms a neutron into: a proton, an electron, and an electron antineutrino.

Answer: b. Radioactivity

5. Two particles with the same mass and charge but opposite in sign and are separated with a distance r has
- a. Gravitational force greater than electric force
 - b. Will repel each other
 - c. The gravitational force is proportional to $1/r$
 - d. The electric force is proportional to $1/r^2$

Solution:

The electric force between two objects is proportional to the inverse square of the distance between the two objects.

Answer: d. The electric force is proportional to $1/r^2$