



Daily Subject wise Quiz Day 30 General Science I (Online Prelims Test)

1) Which of the following is reason behind universal solvent nature of Water

- a. It is dipolar in nature
- b. It is a good conductor of heat
- c. It has high value of specific heat
- d. It is an oxide of hydrogen

Answer : a

Water Universal Solvent

- Water is called the “universal solvent” because it is capable of dissolving more substances than any other liquid.
- Water molecules have a polar arrangement of oxygen and hydrogen atoms—one side (hydrogen) has a positive electrical charge and the other side (oxygen) had a negative charge.
- This allows the water molecule to become attracted to many other different types of molecules.
- Water can become so heavily attracted to a different compound, like salt (NaCl), that it can disrupt the attractive forces that hold the sodium and chloride in the salt compound together and, thus, dissolve it.

2) Which of the following statements are correct with respect to difference between sodium lamps and LED lamps?

1. Sodium lamps produce light at 360 degrees but it is not so in the case of LED lamps.
2. As street lights, sodium lamps have a longer life span than LED lamps.
3. The spectrum of visible light from sodium lamps is almost monochromatic while LED lamps offer significant colour advantages in street lighting.

Select the correct answer using the code given below.

- a. 1 and 3 only
- b. 2 only
- c. 3 only
- d. 1, 2 and 3

Answer : a

Difference between Sodium Vapour and LED Lights

- Sodium lamps are omnidirectional in that they emit light at 360 degrees, while led lamps emit light at 180.
- The two different technologies are entirely different methods of producing light.

- LED lifespan can be greater than 100,000 hours, more than four times that of sodium lamps, therefore, the lifespan of LED is more than Sodium.
- Sodium vapour bulbs contain metals that are evaporated into inert gas within the glass casing while LEDs are a solid-state technology.
- The difference is that sodium vapour lights were the most efficient technology of the 1970s while LEDs are the modern-day equivalent.
- Sodium lamps are monochromatic, and LEDs can be designed to generate the entire spectrum of visible light colours without having to use the traditional colour filters required by traditional lighting.

3) Which of the following statements are correct regarding the general difference between plant and animal cells ?

1. Plant cells have cellulose cell walls whilst animal cells do not.
2. Plant cells do not have plasma membranes unlike animal cells which do.
3. Mature plant cell has one large vacuole whilst an animal cell has many small vacuoles.

Select the correct answer using the codes given below

- a. 1 and 2 only
- b. 2 and 3 only
- c. 1 and 3 only
- d. 1, 2 and 3

Answer : c

Difference between plant and animal cells

- The cell wall is the outer covering of a cell, it surrounds the plasma membrane of plant cells and provides tensile strength and protection against mechanical and osmotic stress.
- The cell wall is present in plant cells and absent in animal cells.
- The plasma membrane (also called the cell membrane) is the membrane found in all cells that separate the interior of the cell from the outside environment.
- In bacterial and plant cells, a cell wall is attached to the plasma membrane on its outside surface.
- The plasma membrane is present in both plant cells and animal cells.
- A vacuole is a membrane-bound cell organelle.
- In animal cells, vacuoles are generally small and help sequester waste products, In-plant cells, vacuoles help maintain water balance.

4) Consider the following statement with respect to carbon nanotubes

1. They are bio degradable and can be used as the carriers of drugs in the human body.
2. They can be made into artificial blood capillaries for an injured part of the human body.

Which of the above statements is/are correct?

- a. 1 only
- b. 2 only
- c. Both 1 and 2
- d. Neither 1 nor 2

Answer : c

Carbon Nanotubes (CNTs)

- Carbon nanotubes (CNTs) are cylindrical molecules consisting of a hexagonal arrangement of hybridized carbon atoms, which may be formed by rolling up sheet(s) of graphene.
- As carbon nanotubes have a high surface area, they go into the cell by the millions, and can have a very high efficiency of delivery to a specific cell.
- Carbon nanotubes can be made into artificial blood capillaries for an injured part of the human body as they are promising drug delivery platforms that can be functionalized with a variety of biomolecules, such as antibodies, proteins, or DNA.

5) Which one of the following is a reason why astronomical distances are measured in light-years?

- a. Distance among stellar bodies do not change
- b. Gravity of stellar bodies does not change
- c. Light always travels in straight line
- d. Speed of light is always same

Answer : d

Light-years

- A light-year is a measurement of distance in space.
- The astronomical distances are measured in light-years because, the speed of light is constant throughout the universe and is known to high precision.
- One light-year equals 5,878,625,370,000 miles (9.5 trillion km). At first glance, this may seem like an extreme distance, but the enormous scale of the universe dwarfs this length.
- Measuring in light-years also allows astronomers to determine how far back in time they are viewing.



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