Class 9th

Question 1:

A body of mass *m* is moving in a straight line with a constant velocity *v*. A force *F* is applied to the body in the same direction as its motion. The percentage change in the kinetic energy of the body after it has moved a distance of *s* is:

(A) 100% increase
(B) 50% increase
(C) 25% increase
(D) 10% increase

Answer: (A)

Question 2:

A body of mass 10 kg is moving with a velocity of 10 m/s. A force of 10 N is applied to the body in the same direction as its motion. The time taken by the body to increase its velocity to 20 m/s is:

(A) 1 s
(B) 2 s
(C) 3 s
(D) 4 s

Answer: (B)

Question 3:

A work of 10 J is done on a body of mass 1 kg. If the initial velocity of the body is 0, the final velocity of the body is:

(A) 10 m/s
(B) 5 m/s
(C) 2.5 m/s
(D) 1.25 m/s

Answer: (D)

Question 4:

A substance X exists as a solid at -50°C and as a liquid at +50°C. At which of the following temperatures will X exist as a gas?

(A) -25°C
(B) 0°C
(C) +25°C
(D) +75°C

Answer: (D)

Question 5:

Which of the following is a homogeneous mixture?

(A) Air
(B) Salt water
(C) Sand water mixture
(D) Oil water mixture

Answer: (B)

Question 6:

Which of the following statements about the Golgi apparatus is false?

(A) The Golgi apparatus is a membrane-bound organelle.
(B) The Golgi apparatus is involved in the packaging and secretion of proteins.
(C) The Golgi apparatus is a single, large organelle.
(D) The Golgi apparatus is composed of flattened sacs called cisternae.

Answer: (C)

has no impact on the plant's ability to survive and reproduce.

Answer: (C)

Question 7:

A scientist is studying a new species of plant. He observes that the plant has a unique type of meristematic tissue that is not found in any other known plant. This meristematic tissue is located in the stem of the plant and is responsible for producing new cells that differentiate into all four types of permanent tissue.

The scientist hypothesizes that this new type of meristematic tissue is an adaptation that allows the plant to grow in extreme environments. To test their hypothesis, the scientist designs an experiment in which they expose the plant to a variety of stressful conditions, such as drought, salinity, and cold.

The scientist observes that the plant is able to survive and thrive in all of the stressful conditions. They also observe that the new type of meristematic tissue is essential for the plant's survival in these conditions.

Based on the above information, which of the following is the best interpretation of the scientist's discovery?

(A) The new type of meristematic tissue is a vestigial structure that serves no purpose in the plant.
(B) The new type of meristematic tissue is a harmful mutation that will likely lead to the extinction of the plant species.
(C) The new type of meristematic tissue is a beneficial adaptation that allows the plant to survive in extreme environments.
(D) The new type of meristematic tissue is a neutral mutation that

Question 8:

A submarine is floating in the ocean. When it is submerged, the water pressure on the top of the submarine is less than the water pressure on the bottom of the submarine. This difference in pressure creates a buoyant force that pushes the submarine upwards.

The submarine captain wants to dive deeper into the ocean. To do this, he needs to increase the weight of the submarine. He can do this by pumping water into the submarine's ballast tanks.

Which of the following is the best explanation of how increasing the weight of the submarine allows it to dive deeper?

(A) The increased weight of the submarine increases the buoyant force on the submarine, which causes it to sink.
(B) The increased weight of the submarine decreases the buoyant force on the submarine, which causes it to sink.
(C) The increased weight of the submarine increases the pressure of the water on the top of the submarine, which causes it to sink.
(D) The increased weight of the submarine decreases the pressure of the water on the bottom of the submarine, which causes it to sink.

Answer: (B)

Question 9:

A scientist is studying a new type of material that has unique properties. The material is a solid at room temperature, but it can be easily melted by applying a small amount of pressure. When the material is melted, it flows like a liquid, but it retains its solid shape.

The scientist hypothesizes that the new material is a type of colloid. To test their hypothesis, the scientist conducts an experiment in which they mix the material with water. The scientist observes that the material does not dissolve in the water, but it forms a suspension. The scientist also observes that the particles of the material are very small and cannot be seen with the naked eye.

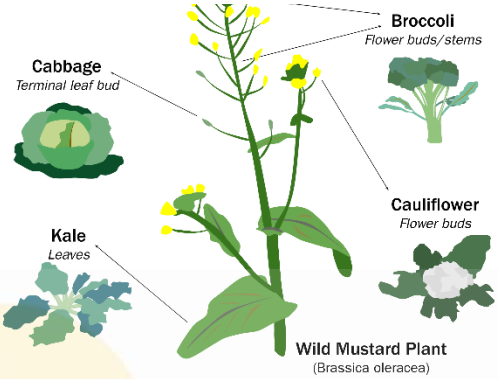
Based on the above information, which of the following is the best interpretation of the scientist's findings?

(A) The new material is a homogeneous mixture.
(B) The new material is a heterogeneous mixture.
(C) The new material is a pure substance.
(D) The new material is a colloid.

Answer: (D)

Question 10:

A farmer is trying to develop a new variety of rice that is resistant to pests and diseases, and that can grow in a wide range of climates. To do this, the farmer decides to use a combination of plant breeding techniques and organic farming practices.



The farmer starts by crossing two different varieties of rice: one variety that is resistant to pests and diseases, and one variety that can grow in a wide range of climates. The farmer then selects the offspring of the cross that have the desired traits. This process is repeated for several generations until the farmer develops a new variety of rice that has all of the desired traits.

The farmer also uses organic farming practices to improve the soil quality and to reduce the need for pesticides and herbicides. The farmer uses compost and manure to fertilize the soil, and they plant cover crops to suppress weeds. The farmer also uses crop rotation to help control pests and diseases.

Which of the following is the best explanation of why the farmer is using a combination of plant

breeding techniques and organic farming practices?

(A) Plant breeding techniques are more effective than organic farming practices for improving crop yields.
(B) Organic farming practices are more effective than plant breeding techniques for improving crop resistance to pests and diseases.
(C) Using a combination of plant breeding techniques and organic farming practices can produce crops that are more resistant to pests and diseases, and that can grow in a wider range of climates.
(D) Using a combination of plant breeding techniques and organic farming practices is the most cost-effective way to produce crops.

Answer: (C)

Class 10th

Question 1:

Which of the following is the correct balanced chemical equation for the combustion of Methane in Oxygen?

(A) $CH_4 + 2O_2 \rightarrow CO_2 + 2H_2O$
(B) $2CH_4 + 5O_2 \rightarrow 2CO_2 + 4H_2O$
(C) $CH_4 + O_2 \rightarrow CO + 2H_2O$
(D) $2CH_4 + 7O_2 \rightarrow 4CO_2 + 6H_2O$

Ans: ((D)$2CH_4 + 7O_2 \rightarrow 4CO_2 + 6H_2O$

Question 2:

Which of the following metals is used in the production of zinc, but not in the production of iron?

(A) Carbon
(B) Limestone
(C) Coke
(D) Bauxite

Ans: (A) Carbon

Question 3:

Which of the following carbon compounds is used as a solvent, a fuel, and a feedstock for the production of plastics?

(A) Ethane
(B) Ethanol
(C) Ethanoic acid
(D) Ethene

Answer: (B) Ethanol

Question 4:

Which of the following statements is *incorrect* for voluntary and involuntary muscle contractions?

(A) Voluntary contractions are under conscious control, while involuntary contractions are not.
(B) Voluntary contractions are more specific than involuntary contractions
(C) Voluntary contractions are stronger than involuntary contractions.
(D) Voluntary contractions are less coordinated than involuntary contractions.

Answer: (D)

Question 5:

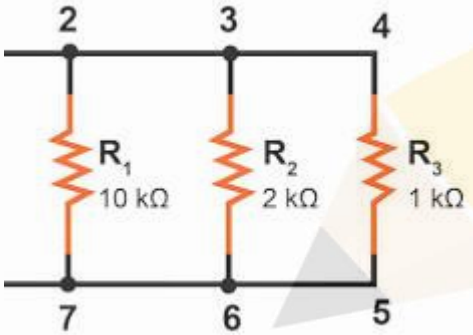
Mendel conducted a cross between a pea plant with purple flowers and a pea plant with white flowers. The resulting offspring were all purple-flowered. Given Mendel's laws of inheritance,

which of the following is the most likely explanation for this result?

(A) The white flower allele is dominant over the purple flower allele.
(B) The purple flower allele and the white flower allele are codominant.
(C) The purple flower allele is dominant over the white flower allele.
(D) The purple flower allele is incompletely dominant over the white flower allele.

Answer: (C)

Question 6:

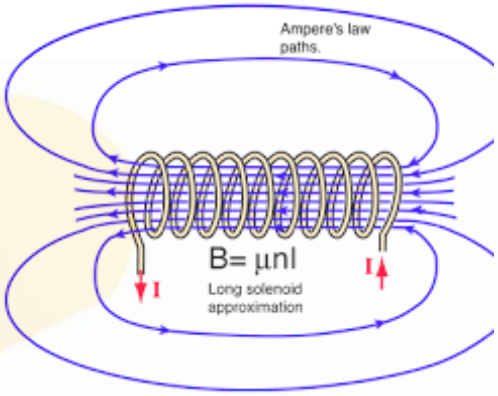


Which of the following statements is true about the total resistance of a parallel circuit?

(A) The total resistance is equal to the sum of the individual resistances.
(B) The total resistance is less than the sum of the individual resistances.
(C) The total resistance is greater than the sum of the individual resistances.
(D) The total resistance is independent of the individual resistances.

Answer: (B)

Question 7:



Which of the following statements is true about the magnetic field inside a solenoid?

(A) The magnetic field is strongest at the ends of the solenoid and weakest in the middle.
(B) The magnetic field is uniform and in the same direction throughout the solenoid.
(C) The magnetic field is strongest in the middle of the solenoid and weakest at the ends.
(D) The magnetic field is zero inside the solenoid.

Answer: (B)

Question 8:

A scientist is studying the effect of different environmental conditions on the growth and development of plants. The scientist designs an experiment in which he exposes plants to different levels of light, temperature, and humidity.

The scientist hypothesizes that the plants are able to sense and respond to their environment in order to optimize their growth and development. This

process is known as phototropism and thermotropism.

Which of the following is the best experiment that the scientist could conduct to test their hypothesis?

(A) Grow plants in different chambers with different levels of light, but control for all other factors.
(B) Grow plants in different chambers with different temperatures, but do not control all other factors.
(C) Grow plants in different chambers with different levels of humidity, but control for all other factors.
(D) Grow plants in different chambers with different levels of light, temperature, and humidity, and measure the growth and development of the plants in each chamber.

Answer: (A)

Question 9:

Mr. Victor is studying the magnetic field produced by a current-carrying wire. He observes that the magnetic field is strongest around the wire and decreases in strength with distance from the wire. He also observes that the direction of the magnetic field is perpendicular to the direction of the current flow.

He hypothesizes that the magnetic field is produced by the moving electrons in the current-carrying wire. To test their hypothesis, He designs an experiment in which they place a compass needle near a current-carrying wire. He observes that the compass needle deflects from its north-south alignment.

Which of the following is the best explanation of why the compass needle deflects from its north-south alignment?

(A) The magnetic field produced by the current-carrying wire is stronger than the Earth's magnetic field.
(B) The magnetic field produced by the current-carrying wire is perpendicular to the Earth's magnetic field.
(C) The moving electrons in the current-carrying wire create a magnetic field that interacts with the magnetic field of the compass needle.
(D) The magnetic field produced by the current-carrying wire induces a current in the compass needle, which causes the compass needle to deflect.

Answer: (C)

Question 10:

Henry was hiking in the mountains when he came across a white solid substance. He had never seen anything like it before. The substance was hard and had a high melting point. It was also insoluble in water but soluble in organic solvents.

Henry took a sample of the substance back to his lab and conducted some experiments. He found that the substance reacted with bromine water to turn it colorless.

What type of carbon compound is Henry most likely to have found?

(A) Alkane
(B) Alkene
(C) Alkyne
(D) Aromatic compound

Answer: (B)