

AFNS TEST 11 September 2025

Question: Darwin's theory is based on?

Correct Answer: Natural selection

Explanation: Darwin explained survival of the fittest through natural selection.

Related Question 1: What is fitness in evolutionary biology?

Correct Answer: The ability of an organism to survive and reproduce.

Related Question 2: Who co-developed the theory of evolution by natural selection?

Correct Answer: Alfred Russel Wallace



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Question: Transport of food in plants?

Correct Answer: Phloem

Explanation: Phloem carries sugars from leaves to other parts of the plant.

Related Question 1: What tissue transports water in plants?

Correct Answer: Xylem

Related Question 2: What is the process by which food is transported in phloem?

Correct Answer: Translocation

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Question: HIV causes which disease?

Correct Answer: AIDS

Explanation: HIV attacks CD4⁺ T-cells, leading to acquired immunodeficiency syndrome.

Related Question 1: How is HIV transmitted?

Correct Answer: Through bodily fluids such as blood, semen, and breast milk.

Related Question 2: What does HIV stand for?

Correct Answer: Human Immunodeficiency Virus

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Question: Xylem tissue belongs to which type?

Correct Answer: Vascular tissue

Explanation: Xylem and phloem together form vascular tissue.

Related Question 1: What is the function of xylem?

Correct Answer: Transport of water and minerals

Related Question 2: Which cells are present in xylem?

Correct Answer: Tracheids and vessel elements

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Question: Louis Pasteur discovered vaccine for?

Correct Answer: Rabies

Explanation: Pasteur developed vaccines for rabies, anthrax, and cholera.

Related Question 1: What process did Pasteur develop to kill bacteria in liquids?

Correct Answer: Pasteurization

Related Question 2: Which microorganism did Pasteur use to create the anthrax vaccine?

Correct Answer: Bacillus anthracis

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Question: What is the principle of relativity?

Correct Answer: The laws of physics are the same for all observers in uniform motion relative to each other.

Related Question 1: Who first formulated the principle of relativity?

Correct Answer: Galileo Galilei

Related Question 2: Which theory incorporates the principle of relativity?

Correct Answer: Einstein's theory of special relativity

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Question: What is the Bohr radius?

Correct Answer: The radius of the smallest orbit in the hydrogen atom.

Related Question 1: What is the value of the Bohr radius?

Correct Answer: 5.29×10^{-11} meters

Related Question 2: What does the Bohr radius describe?

Correct Answer: The most probable distance of the electron from the nucleus in the hydrogen atom.

AFNS TEST 11 September 2025

Question: In which circuit does voltage lead current?

Correct Answer: RL circuit, also called an inductive circuit

Explanation: In inductive circuits, voltage leads current by a phase angle because inductors oppose changes in current.

Related Question 1: In which circuit does current lead voltage?

Correct Answer: RC circuit (Resistive-Capacitive)

Related Question 2: In which circuit does voltage and current remain in phase?

Correct Answer: Resistive circuit

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Question: Phase difference in a three-phase current system is?

Correct Answer: One hundred twenty degrees

Explanation: In a balanced three-phase system, each phase is separated by one hundred twenty degrees to ensure constant power transfer.

Related Question 1: What is the phase difference between two lines in a single-phase current?

Correct Answer: Zero degrees

Related Question 2: What happens if the phases in a three-phase system are not 120 degrees apart?

Correct Answer: It can cause uneven power distribution and reduce system efficiency.

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Question: Louis Pasteur developed a vaccine for?

Correct Answer: Anthrax

Explanation: Pasteur created the first vaccine against anthrax in 1881, demonstrating the germ theory of disease.

Related Question 1: Which other vaccine did Louis Pasteur develop?

Correct Answer: Rabies

Related Question 2: What did Pasteur's work lead to in terms of disease prevention?

Correct Answer: The development of vaccines and the germ theory of disease.

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Question: Synonym of “cultivated” is?

Correct Answer: Tamed

Explanation: “Cultivated” can mean domesticated, refined, or tamed, depending on context.

Related Question 1: What is an antonym of “cultivated”?

Correct Answer: Wild

Related Question 2: Which word also means “cultivated” in the context of land?

Correct Answer: Farmed

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Question: Dormant mycelium of loose smut of wheat is stored in?

Correct Answer: Embryo

Explanation: The fungus survives as dormant mycelium in the embryo of infected wheat seeds until germination.

Related Question 1: What causes the disease in wheat plants due to loose smut?

Correct Answer: The fungus *Ustilago tritici*

Related Question 2: What type of plant is affected by loose smut?

Correct Answer: Wheat

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Question: If sinusoidal current has root mean square value of ten amperes, what is the maximum value?

Correct Answer: Fourteen point one four amperes

Explanation: For sinusoidal current, maximum value equals root mean square value multiplied by the square root of two. Thus, ten multiplied by 1.414 equals 14.14 amperes.

Related Question 1: What is the formula for calculating RMS value from maximum value?

Correct Answer: $\text{RMS} = \text{Max Value} / \sqrt{2}$

Related Question 2: What is the maximum value of current if RMS is 5 amperes?

Correct Answer: 7.07 amperes

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Question: If x is 3 years old and his sister is 3 times older: When x is 8, his sister will be how old?

Correct Answer: 18

Explanation: At age 3, the sister is 9 years old, which is 6 years older. When x is 8, adding 6 years gives 18.

Related Question 1: If x is 5 years old, and his sister is 3 times older, how old is she?

Correct Answer: 15 years old

Related Question 2: If x is 10 years old, and his sister is 5 times older, how old is she?

Correct Answer: 50 years old

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Question: Exothermic reaction is defined as?

Correct Answer: A reaction that releases heat

Explanation: In an exothermic reaction, the enthalpy of products is less than that of reactants, and excess energy is released as heat.

Related Question 1: What is an example of an exothermic reaction?

Correct Answer: Combustion of fuels

Related Question 2: What is the opposite of an exothermic reaction?

Correct Answer: Endothermic reaction

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Question: What is used in decarboxylation of carboxylic acids?

Correct Answer: Soda lime

Explanation: Carboxylic acids undergo decarboxylation in the presence of soda lime, producing alkanes.

Related Question 1: What is soda lime made of?

Correct Answer: Sodium hydroxide (NaOH) and calcium oxide (CaO)

Related Question 2: What is the product of decarboxylation of acetic acid?

Correct Answer: Methane

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Question: Most abundant polymer on Earth is?

Correct Answer: Cellulose

Explanation: Cellulose is a natural polymer found in plant cell walls and is the most abundant organic polymer on Earth.

Related Question 1: What is cellulose made up of?

Correct Answer: Glucose units

Related Question 2: Which organisms have cellulose in their cell walls?

Correct Answer: Plants

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Question: If an embryo is implanted in the ovary, what hormone would be secreted?

Correct Answer: Progesterone

Explanation: Progesterone is secreted to maintain the endometrium and support pregnancy, regardless of implantation site.

Related Question 1: What hormone is produced after implantation in the uterus?

Correct Answer: Human Chorionic Gonadotropin (HCG)

Related Question 2: What is the role of progesterone during pregnancy?

Correct Answer: To maintain the uterine lining

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Question: Which vitamin is responsible for blood clotting?

Correct Answer: Vitamin K

Explanation: Vitamin K is essential for the synthesis of clotting factors, helping blood coagulation.

Related Question 1: What food is rich in Vitamin K?

Correct Answer: Leafy green vegetables

Related Question 2: What deficiency causes excessive bleeding?

Correct Answer: Vitamin K deficiency

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Question: What is the charge on a neutron?

Correct Answer: Neutral

Explanation: Neutrons have no charge; they are electrically neutral particles found in the nucleus of an atom.

Related Question 1: What is the charge of a proton?

Correct Answer: Positive

Related Question 2: What is the charge of an electron?

Correct Answer: Negative