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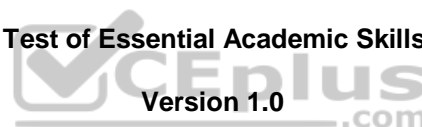
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TEAS

Section 2: Science

Test of Essential Academic Skills



Exam A

QUESTION 1

Which of the following correctly lists the cellular hierarchy from the simplest to the most complex structure?

- A. organ system, organism, organ, tissue, cell
- B. cell, tissue, organ, organ system, organism
- C. tissue, cell, organ, organ system, organism
- D. organism, organ system, organ, tissue, cell

Correct Answer: B

Section: (none)

Explanation

Explanation/Reference:

Explanation:

The cellular hierarchy starts with the cell, the simplest structure, and progresses to organisms, the most complex structures.

QUESTION 2 If a cell is placed in a hypertonic solution, what will happen to the cell?

- A. It will swell.
- B. It will shrink.
- C. It does not affect the cell.
- D. It will stay the same.

Correct Answer: B

Section: (none)

Explanation

Explanation/Reference:

Explanation:

A hypertonic solution is a solution with a higher particle concentration than in the cell, and consequently lower water content than in the cell. Water moves from the cell to the solution, causing the cell to experience water loss and shrink.

QUESTION 3 What is the longest phase of the cell cycle?

- A. mitosis
- B. cytokinesis
- C. interphase
- D. metaphase

Correct Answer: C

Section: (none)

Explanation

Explanation/Reference:

Explanation:

Interphase is the period when the DNA is replicated (or when the chromosomes are replicated) and is the longest part of the cell cycle.

QUESTION 4

	B	g
B	BB	Bg
g	Bg	gg

Which word describes the allele for green eyes?

B = alleles for brown eyes; g = alleles for green eyes

- A. homozygous
- B. dominant
- C. heterozygous
- D. recessive

Correct Answer: D

Section: (none)

Explanation

Explanation/Reference:

Explanation:

Recessive alleles are represented by lower case letters, while dominant alleles are represented by upper case letters.

QUESTION 5

	B	g
B	BB	Bg
g	Bg	gg

What is the possibility that the offspring produced will have brown eyes?

B = alleles for brown eyes; g = alleles for green eyes

- A. 100%
- B. 75% C. 50%
- D. 25%



Correct Answer: B

Section: (none)

Explanation

Explanation/Reference:

Explanation:

Dominant genes are always expressed when both alleles are dominant (BB) or when one is dominant and one is recessive (Bg).

In this case, 3/4 or 75% will have brown eyes.

QUESTION 6 What are groups of cells that perform the same function called?

- A. molecules
- B. organs
- C. plastids
- D. tissues

Correct Answer: D

Section: (none)

Explanation

Explanation/Reference:

Explanation:

Groups of cells that perform the same function are called tissues.

QUESTION 7

When does the nuclear division of somatic cells take place during cellular reproduction?

- A. mitosis
- B. meiosis
- C. cytokinesis
- D. interphase

Correct Answer: A

Section: (none)

Explanation

Explanation/Reference:

Explanation:

The nuclear division of somatic cells takes place during mitosis.

QUESTION 8 Which group of major parts and organs make up the immune system?

- A. nose, trachea, bronchial tubes, lungs, alveolus, and diaphragm
- B. heart, veins, arteries, and capillaries
- C. brain, spinal cord, and nerve cells
- D. lymphatic system, spleen, tonsils, thymus, and bone marrow

Correct Answer: D

Section: (none)

Explanation

Explanation/Reference:

Explanation:

The immune system consists of the lymphatic system, spleen, tonsils, thymus and bone marrow.

QUESTION 9 The rate of a chemical reaction depends on all of the following except

_____.

- A. amount of mass lost
- B. presence of catalysts
- C. temperature
- D. surface area

Correct Answer: A

Section: (none)

Explanation

Explanation/Reference:

Explanation:

The rate at which a chemical reaction occurs does not depend on the amount of mass lost, since the law of conservation of mass (or matter) states that in a chemical reaction there is no loss of mass.

QUESTION 10

For a given mass and constant temperature, an inverse relationship exists between the volume and pressure of a gas.

Which of the answer choices provided best defines the following statement?

- A. Stefan-Boltzmann Law
- B. Ideal Gas Law
- C. Boyle's Law
- D. Charles' Law

Correct Answer: C

Section: (none)

Explanation

Explanation/Reference:

Explanation:

Boyle's law states that for a constant mass and temperature, pressure and volume are related inversely to one another: $PV = c$, where c = constant.

QUESTION 11 Prokaryotic and eukaryotic cells are similar in having which of the following?

- A. Presence of a nucleus
- B. Protein-studded DNA
- C. Integral membrane proteins in the plasma membrane
- D. Membrane-bound organelles

Correct Answer: D

Section: (none)

Explanation

Explanation/Reference:

Explanation:

Both prokaryotes and eukaryotes interact with the extracellular environment and use membrane-bound or membrane-associated proteins to achieve this. They both use diffusion and active transport to move materials in and out of their cells. Prokaryotes have very few proteins associated with their DNA, whereas eukaryotes' DNA is richly studded with proteins. Both types of living things can have flagella, although with different structural characteristics in the two groups. The most important differences between prokaryotes and eukaryotes are the lack of a nucleus and membrane-bound organelles in prokaryotes.

QUESTION 12 What is the role of ribosomes?

- A. waste removal
- B. storage
- C. transport
- D. make proteins



Correct Answer: D

Section: (none)

Explanation

Explanation/Reference:

Explanation:

A ribosome is a structure of eukaryotic cells that makes proteins.

QUESTION 13 Which of the following is an example of a tissue?

- A. xylem
- B. liver
- C. mammal
- D. hamstring

Correct Answer: A

Section: (none)

Explanation

Explanation/Reference:

Explanation:

A xylem is an example of a tissue. A liver is an organ, a mammal is a type of organism, and a hamstring is a muscle.

QUESTION 14 The adrenal glands are part of the _____.

- A. respiratory system.

- B. emphatic system.
- C. endocrine system.
- D. immune system.

Correct Answer: C

Section: (none)

Explanation

Explanation/Reference:

Explanation:

The adrenal glands are part of the endocrine system.

They sit on the kidneys and produce hormones that regulate salt and water balance and influence blood pressure and heart rate.

QUESTION 15 Which of the following is exchanged between two or more atoms that undergo ionic bonding?

- A. electrical charges
- B. valence electrons
- C. transitory electrons
- D. neutrons

Correct Answer: B

Section: (none)

Explanation

Explanation/Reference:

Explanation:

An ionic bond forms when one atom donates an electron from its outer shell, called a valence electron, to another atom to form two oppositely charged atoms.

QUESTION 16 Which vitamin is synthesized within the human body?

- A. vitamin D
- B. vitamin E
- C. vitamin C
- D. vitamin A

Correct Answer: A

Section: (none)

Explanation

Explanation/Reference:

QUESTION 17 Trypsinogen, an enzyme secreted by the pancreas, is activated into trypsin in the duodenum by which enzyme?

- A. protease
- B. hydrochloric acid
- C. enterokinase
- D. pepsin

Correct Answer: C

Section: (none)

Explanation

Explanation/Reference:

QUESTION 18 By which gland in the body is produced follicle-stimulating hormone (FSH), which is responsible for maturation of follicles in the ovary?

- A. corpus luteum
- B. ovary
- C. anterior lobe of pituitary gland
- D. posterior lobe of pituitary gland

Correct Answer: C

Section: (none)

Explanation

Explanation/Reference:

QUESTION 19 In a chemical reaction: sulfuric acid + substance x = salt + water + carbon dioxide

What could substance x be?

- A. copper(II) oxide
- B. potassium
- C. sodium carbonate
- D. magnesium hydroxide

Correct Answer: C

Section: (none)

Explanation

Explanation/Reference:



QUESTION 20 A ball is tied to a pole with a rope and is moving in a circle with constant speed.

Which of these statements about the ball is true?

- A. Force is acting away from the center of circle.
- B. Force is acting at a tangent to the circle.
- C. There is no acceleration.
- D. There is force acting toward the center of circle.

Correct Answer: D

Section: (none)

Explanation

Explanation/Reference:

QUESTION 21 Which of these make up a molecule of fat?

- A. three molecules of fatty acid and one molecule of glycerol
- B. one glycerol molecule and three stearic acid molecules
- C. three molecules of glycerol and one molecule of fatty acid
- D. one carbon, one hydrogen, and one oxygen molecule

Correct Answer: A

Section: (none)

Explanation

Explanation/Reference:

QUESTION 22

Fill in the blanks:

Enzymes are _____ that work best at _____ pH or temperature.

- A. biological catalysts, optimum
- B. organic catalysts, minimum
- C. inorganic catalysts, maximum
- D. chemical substances, moderate

Correct Answer: A

Section: (none)

Explanation

Explanation/Reference:

QUESTION 23 Which of these statements regarding the process of fermentation is true?

- A. It is an example of tissue respiration where yeast acts on carbohydrates to produce oxygen and alcohol.
- B. It is an example of an aerobic process where yeast acts on a sugar solution to produce oxygen and alcohol.
- C. It is an example of an anaerobic process where bacteria act on a protein solution to produce carbon dioxide and alcohol.
- D. It is an example of an anaerobic process where yeast acts on a sugar solution to produce carbon dioxide and alcohol.

Correct Answer: D

Section: (none)

Explanation

Explanation/Reference:

QUESTION 24 Which of these statements regarding the “oxygen debt” created during heavy exercise is true?

- A. Oxygen debt is created due to build-up of acetic acid in the muscles, which needs a high level of oxygen to be oxidized.
- B. Oxygen debt is created due to build-up of lactic acid in the muscles, which needs a high level of oxygen to be oxidized.
- C. Oxygen debt is created due to build-up of lactic acid in the liver, which needs a high level of oxygen to be stored.
- D. Oxygen debt is created due to build-up of lactic acid in the muscles, which needs a high level of carbon dioxide to be oxidized.

Correct Answer: B

Section: (none)

Explanation

Explanation/Reference:

QUESTION 25

Which of these statements regarding facilitated diffusion across a cell membrane is true?

- A. It is a kind of active transport (i.e., does directly use energy such as hydrolysis of ATP) that requires protein pumps.
- B. It is a kind of passive transport (i.e., does not directly use energy such as hydrolysis of ATP) that does not require transmembrane/carrier proteins.
- C. It is a kind of passive transport (i.e., does not directly use energy such as hydrolysis of ATP) that requires transmembrane/carrier proteins.

D. It is a kind of active transport (i.e., does directly use energy such as hydrolysis of ATP) that requires transmembrane/carrier proteins.

Correct Answer: C

Section: (none)

Explanation

Explanation/Reference:

QUESTION 26 Phalanges are bones present in which parts of the body?

- A. fingers and toes
- B. cranium/skull
- C. fingers only
- D. ears

Correct Answer: A

Section: (none)

Explanation

Explanation/Reference:

QUESTION 27 Which statement regarding ball and socket joints is true?

- A. Ball and socket joints are multi-axial joints, which are highly mobile, allowing movement in multiple axes and planes.
- B. Ball and socket joints are uni-axial joints, which are highly mobile, allowing rotation around a central axis.
- C. Ball and socket joints are bi-axial joints, which are mobile, allowing movement in two planes.
- D. Ball and socket joints are uni-axial joints, which are mobile, allowing movement in a single axis and plane.

Correct Answer: A

Section: (none)

Explanation

Explanation/Reference:

QUESTION 28 Ball and socket joints, pivot joints, plane joints, and hinge joints are which type of joints?

- A. All of them are cartilaginous joints.
- B. All of them are synovial joints.
- C. Ball and socket and pivot joints are synovial joints. Plane and hinge joints are cartilaginous joints.
- D. Ball and socket joints are synovial joints. The rest are fibrous joints.

Correct Answer: B

Section: (none)

Explanation

Explanation/Reference:

QUESTION 29 Cardiac muscles exhibit which of these features?

- A. striated, involuntary, intercalated discs not present
- B. striated, involuntary, intercalated discs present
- C. striated, voluntary, intercalated discs present

D. unstriated, involuntary, intercalated discs present

Correct Answer: B

Section: (none)

Explanation

Explanation/Reference:

QUESTION 30

Fill in the blank:

The hepatic portal vein carries _____, _____ blood from the _____ to the _____.

- A. deoxygenated, nutrient-rich, intestines, liver
- B. deoxygenated, nutrient-rich, liver, stomach
- C. deoxygenated, nutrient-poor, liver, intestines
- D. oxygenated, nutrient-rich, intestines, liver

Correct Answer: A

Section: (none)

Explanation

Explanation/Reference:

QUESTION 31 On each side of the body, the brachiocephalic veins are formed by the union of which two veins?

- A. external jugular veins and subclavian veins
- B. external jugular and internal jugular veins
- C. common carotid and subclavian veins
- D. internal jugular veins and subclavian veins



Correct Answer: D

Section: (none)

Explanation

Explanation/Reference:

QUESTION 32 Large lymphatic trunks unite to form which two main vessels of the lymphatic system?

- A. thoracic duct and superior vena cava
- B. right lymphatic duct and thoracic duct
- C. left lymphatic duct and thoracic duct
- D. right lymphatic duct and left subclavian vein

Correct Answer: B

Section: (none)

Explanation

Explanation/Reference:

QUESTION 33 Which of these is not a lymphoid organ?

- A. thymus
- B. tonsilsC. liver
- D. spleen

Correct Answer: C

Section: (none)

Explanation

Explanation/Reference:

QUESTION 34 Which of these is not a part of the central nervous system?

- A. spinal cord
- B. tract (bundle of nerve fibers/axons)
- C. brain
- D. cranial nerves

Correct Answer: D

Section: (none)

Explanation

Explanation/Reference:

QUESTION 35 Which structure is not considered a part of the rib cage?

- A. the thoracic vertebrae
- B. costal cartilage
- C. sternum
- D. the lumbar vertebrae

Correct Answer: D

Section: (none)

Explanation

Explanation/Reference:

QUESTION 36 Which of these is known as the pacemaker of the heart?

- A. AV node
- B. cardiac plexus (nerve fibers)
- C. SA node
- D. muscle fibers of the atria

Correct Answer: C

Section: (none)

Explanation

Explanation/Reference:

QUESTION 37 Which valve is found between the left atrium and the left ventricle?

- A. the tricuspid valve
- B. the pulmonary valve
- C. the aortic valve
- D. the mitral valve

Correct Answer: D

Section: (none)

Explanation

Explanation/Reference:

QUESTION 38 Which layer of the skin contains hair follicles, sweat glands, and nerves?

- A. the dermis
- B. the subcutaneous layer
- C. the basal layer
- D. the epidermis

Correct Answer: A

Section: (none)

Explanation

Explanation/Reference:

QUESTION 39 Which element is essential for the normal production of the hormone thyroxine?

- A. phosphorus
- B. iodine
- C. calcium and vitamin D
- D. magnesium

Correct Answer: B

Section: (none)

Explanation

Explanation/Reference:

QUESTION 40

Fill in the blanks:

Vitamin A, also known as _____, is a _____ vitamin. Its deficiency can lead to _____.

- A. ascorbic acid, water-soluble, night blindness
- B. calciferol, fat-soluble, osteoporosis
- C. retinol, water-soluble, osteoporosis
- D. retinol, fat-soluble, night blindness

Correct Answer: D

Section: (none)

Explanation

Explanation/Reference:

QUESTION 41 Which of these is an example of protein-related malnutrition?

- A. scurvy
- B. kwashiorkor
- C. rickets
- D. anemia

Correct Answer: B

Section: (none)

Explanation

Explanation/Reference:

QUESTION 42 Food moves in the gastrointestinal tract by which of these processes?

- A. peristalsis of the circular and longitudinal muscles
- B. peristalsis of the voluntary muscles.
- C. voluntary waves of contraction
- D. peristalsis of the longitudinal muscles only.

Correct Answer: A

Section: (none)

Explanation

Explanation/Reference:

QUESTION 43 What is the function of amylase in the body?

- A. It breaks down proteins into amino acids.
- B. It breaks down fat into fatty acids.
- C. It breaks down starch into simpler sugars.
- D. It breaks down fat into glycerol.

Correct Answer: C

Section: (none)

Explanation

Explanation/Reference:

QUESTION 44

Which of these statements regarding the gastrointestinal tract is false?

- A. Villi present in the large intestine absorb water and mineral salts.
- B. The ileum absorbs B12 and bile salts.
- C. The large intestine secretes no enzymes.
- D. Villi contain lacteals for the absorption of fats.

Correct Answer: A

Section: (none)

Explanation

Explanation/Reference:

QUESTION 45 What is the life span and breakdown product of red blood cells?

- A. 2 months, biliverdin
- B. 4 months, bilirubin.
- C. 1 year, oxyhemoglobin
- D. 6 months, ammonia

Correct Answer: B

Section: (none)

Explanation

Explanation/Reference:

QUESTION 46 Maturation and development of T cells takes place in which region?

- A. spleen
- B. bone marrow
- C. lymph nodes
- D. thymus gland

Correct Answer: D

Section: (none)

Explanation

Explanation/Reference:



QUESTION 47 Which of these statements is false regarding blood cells?

- A. Mature red blood cells are oval, bi-concave discs with a lifespan of 120 days.
- B. White blood cells are larger and less abundant than red blood cells.
- C. Phagocytes and lymphocytes are the most numerous types of white blood cells.
- D. Mature red blood cells are bi-concave discs that have a central nucleus and long life span.

Correct Answer: D

Section: (none)

Explanation

Explanation/Reference:

QUESTION 48

During inhalation, what changes occur in the diaphragm?

- A. The diaphragm muscles relax, making it dome-shaped.
- B. The diaphragm muscles contract or tighten and move upward.
- C. The abdominal muscles contract, making the diaphragm move upward.
- D. The diaphragm muscles contract or tighten and the diaphragm moves downward.

Correct Answer: D

Section: (none)

Explanation

Explanation/Reference:

QUESTION 49 The volume of air that remains present in the lungs, even after forceful expiration/exhalation, is called _____ and is about _____ liters.

- A. residual volume, 0.5 liters
- B. vital volume, 2 liters
- C. residual volume, 1.2 liters
- D. tidal volume, 2.4 liters

Correct Answer: C

Section: (none)

Explanation

Explanation/Reference:

QUESTION 50 Which pyrimidine base is only found in RNA?

- A. adenine
- B. uracil
- C. cytosine
- D. guanine

Correct Answer: B

Section: (none)

Explanation

Explanation/Reference:



QUESTION 51 Spinal muscular atrophy (SMA) is an autosomal recessive disorder.

Knowing this information, what are the chances that a child will not have the recessive allele if both of his parents are carriers?

- A. 100%
- B. 0%
- C. 50%
- D. 25%

Correct Answer: D

Section: (none)

Explanation

Explanation/Reference:

QUESTION 52 If someone is lying belly-down, their positioning is said to be what?

- A. posterior
- B. prone
- C. supine
- D. lateral

Correct Answer: B

Section: (none)

Explanation

Explanation/Reference:

QUESTION 53 Which of these statements is true for boiling, but not true for evaporation?

- A. Gas forms at the surface of the liquid.
- B. The warmer the liquid is, the faster the process.
- C. It takes place at a specific temperature.
- D. The larger the surface area of liquid, the faster the process.

Correct Answer: C

Section: (none)

Explanation

Explanation/Reference:

QUESTION 54 How does an impurity affect the melting point and boiling point of a substance?

- A. Impurity lowers the boiling point and lowers the melting point.
- B. Impurity lowers the boiling point and raises the melting point.
- C. Impurity raises the boiling point and lowers the melting point.
- D. Impurity raises the boiling point and raises the melting point.

Correct Answer: C

Section: (none)

Explanation

Explanation/Reference:

QUESTION 55 Which of these statements regarding isotopes is not true?

- A. Isotopes of an element have the same chemical and physical properties.
- B. Isotopes are atoms of the same element with different mass numbers.
- C. Isotopes have the same number of protons and electrons in each atom, but a different number of neutrons in their nucleus.
- D. Radio-isotopes are isotopes with unstable nuclei that emit radiations.

Correct Answer: A

Section: (none)

Explanation

Explanation/Reference:

QUESTION 56 Which of these patterns of the periodic table is not correct?

- A. In metallic groups, reactivity increases down a group.
- B. Atomic size increases down a group and across a period (from left to right).
- C. In non-metallic groups, reactivity decreases down a group.
- D. Densities and melting points increase down any group.

Correct Answer: B

Section: (none)

Explanation

Explanation/Reference:

QUESTION 57 Simple covalent compounds show which of the following properties?

- A. They are soluble in organic solvents e.g. ethanol.
- B. They conduct electricity when molten or dissolved in water.
- C. They are crystalline solids at room temperature.
- D. They have high melting and boiling points.

Correct Answer: A

Section: (none)

Explanation

Explanation/Reference:

QUESTION 58 The law of conservation of mass states that _____.

- A. The total mass of all products of a chemical reaction is independent of the total mass of all the reactants. They are not related.
- B. The total mass of all products of a chemical reaction is equal to the total mass of all the reactants.
- C. The total mass of all products of a chemical reaction is more than the total mass of all the reactants.
- D. The total mass of all products of a chemical reaction is less than the total mass of all the reactants, because some mass converts to energy during reaction.

Correct Answer: B

Section: (none)

Explanation

Explanation/Reference:

QUESTION 59 What happens when a piece of zinc is placed in a copper(II) sulphate solution?

- A. Zinc displaces copper from copper(II) sulphate solution. The original blue color of the solution persists.
- B. Sulphur dioxide is liberated.
- C. Zinc displaces copper from copper(II) sulphate solution.
- D. No reaction occurs because zinc is less reactive metal than copper.

Correct Answer: C

Section: (none)

Explanation

Explanation/Reference:

QUESTION 60 Which of these statements is correct?

- A. An oxidizing agent removes oxygen or electrons from other substances.
- B. A reducing reagent either adds oxygen to, or removes electrons from, another substance.
- C. An oxidizing agent either adds oxygen to, or removes electrons from, other substances.
- D. A reducing agent removes oxygen from, or removes electrons to, another substance.

Correct Answer: C

Section: (none)

Explanation

Explanation/Reference:

QUESTION 61 What causes a moving body to resist a change in its state of motion?

- A. its momentum
- B. its speed
- C. its acceleration
- D. its inertia

Correct Answer: D

Section: (none)

Explanation

Explanation/Reference:

QUESTION 62 A change in the gravitational field affects which property of a body?

- A. temperature
- B. weight
- C. mass
- D. volume

Correct Answer: B

Section: (none)

Explanation

Explanation/Reference:



QUESTION 63 Which of these groups of physical quantities consists only of scalars?

- A. time, velocity, force
- B. mass, velocity, acceleration
- C. speed, weight, acceleration
- D. mass, speed, time

Correct Answer: D

Section: (none)

Explanation

Explanation/Reference:

QUESTION 64 A body of mass 30 kg is traveling in space at a speed of 10 m/s. Given that the formula for kinetic energy is $KE = 0.5 \times m \times v^2$, and m is mass and v is speed of an object, what is its kinetic energy?

- A. 1000 J
- B. 4600 J
- C. 120 J
- D. 1500 J

Correct Answer: D

Section: (none)

Explanation

Explanation/Reference:

QUESTION 65 A man of mass 60 kg, runs up the stairs of total height 5 meters in 4 seconds.

How much power is exerted by the man?

- A. 800W
- B. 750 W
- C. 250W
- D. 1000W

Correct Answer: B

Section: (none)

Explanation

Explanation/Reference:

QUESTION 66

Which of these represents the correct order of some of the main energy changes that take place in a coal-fired power station?

- A. chemical, heat, kinetic, electrical
- B. kinetic, heat, electrical, chemical
- C. chemical, electrical, heat, kinetic
- D. heat, chemical, kinetic, electrical



Correct Answer: A

Section: (none)

Explanation

Explanation/Reference:

QUESTION 67

A large amount of energy is produced in the center of sun by which phenomenon?

- A. chemical reaction
- B. nuclear fission
- C. nuclear fusion
- D. radioactive decay

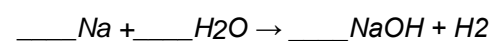
Correct Answer: C

Section: (none)

Explanation

Explanation/Reference:

QUESTION 68 Balance the following chemical equation by filling in the coefficients that should go in the blanks:



A. $2\text{Na} + 2\text{H}_2\text{O} \rightarrow 4\text{NaOH} + \text{H}_2$ B.

$2\text{Na} + \text{H}_2\text{O} \rightarrow 3\text{NaOH} + \text{H}_2$

C. $3\text{Na} + 3\text{H}_2\text{O} \rightarrow 3\text{NaOH} + \text{H}_2$

D. $2\text{Na} + 2\text{H}_2\text{O} \rightarrow 2\text{NaOH} + \text{H}_2$

Correct Answer: D

Section: (none)

Explanation

Explanation/Reference:

QUESTION 69 Which of these organs is made up of epithelial tissue?

A. the skin

B. the liver

C. the heartD. the brain

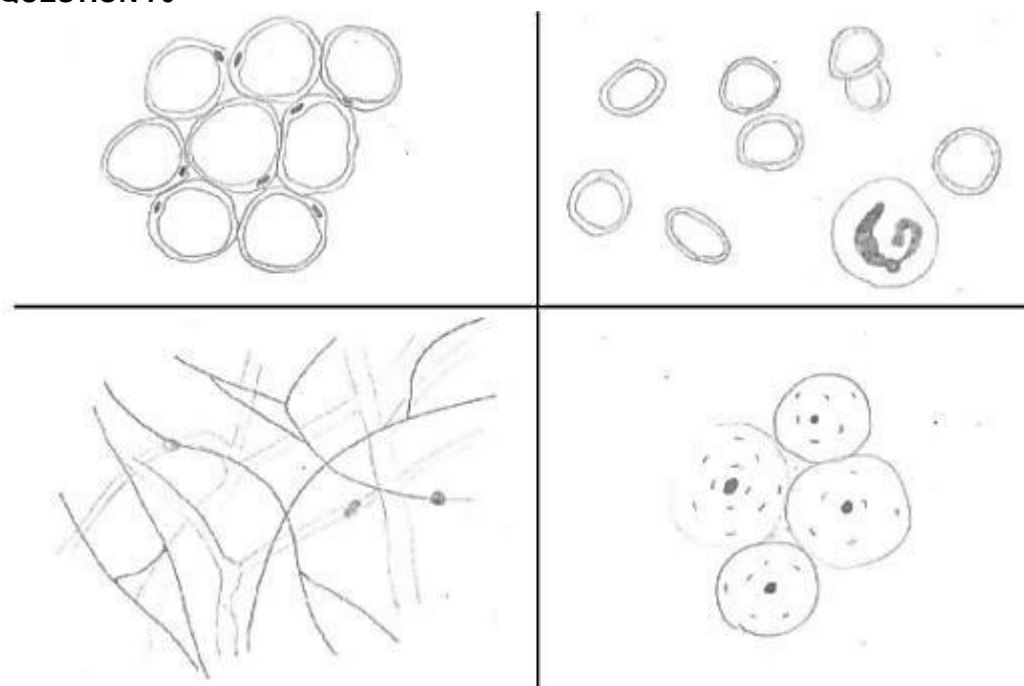
Correct Answer: A

Section: (none)

Explanation

Explanation/Reference:

QUESTION 70



The attached diagram shows four varieties of one type of tissue.

Name the type of tissue and the four varieties.

A. connective: adipose, blood, areolar, and bone

B. epithelial: transitional, stratified, columnar, and cuboidal

C. nervous: grey matter, white matter, dendritic, and ganglion

D. connective: adipose, cardiac, transitional, and bone

Correct Answer: A

Section: (none)

Explanation

Explanation/Reference:

QUESTION 71

Gregor Mendel used pea plants to conduct experiments on genetics and heredity. He grew approximately 29,000 plants to study seven characteristics: flower color, seed texture, seed color, stem length, pod color, pod texture, and flower position. Mendel was able to demonstrate that these characteristics were passed from one generation to the next and that the offspring could inherit the characteristics from either one, or from both, of the parent plants.

Referring to the passage, tell why it was important that Gregor Mendel used a large number of plants in his experiments into genetics and heredity?

- A. Pea plants are susceptible to disease, so he needed a lot of them to make sure enough would survive to adulthood to allow him to draw his conclusions.
- B. With a large number of plants, he could demonstrate that the results didn't just happen by chance.
- C. It wasn't important at all – pea plants produce lots of seeds, so he planted them all to see what would happen.
- D. Plants don't have as many genes as animals, so he needed more of them to study genetics properly.

Correct Answer: B

Section: (none)

Explanation

Explanation/Reference:

QUESTION 72

Pea plants can self-pollinate (sperm and eggs both come from the same plant) or they can cross-pollinate (sperm and eggs come from different plants). Gregor Mendel used this to study heredity. He found that if he took a plant that only produced yellow peas and crossed it with a plant that only produced green peas, all the offspring would only produce yellow peas.

On the other hand, if he left the offspring (all yellow pea plants) alone and let them self-pollinate, then the second generation had a ratio of 3:1 yellow to green pea plants. Thus, Mendel could demonstrate that some traits are “dominant” while others are “recessive.”

Referring to this passage, what could Gregor Mendel conclude from the result of his experiment with green and yellow pea plants?

- A. Green peas are a recessive trait.
- B. Pea plants have carbohydrates, like starch, that are coded for by their DNA.
- C. Inbreeding of pea plants causes mutations.
- D. All traits come in pairs and there is always a dominant trait and a recessive trait.

Correct Answer: A

Section: (none)

Explanation

Explanation/Reference:

QUESTION 73 Carbohydrates are macromolecules that can be divided into three main types.

Name the types of carbohydrates.

- A. monosaccharides, disaccharides, and polysaccharides
- B. monosaccharides, polysaccharides, and glycosidic bonds
- C. lipids, proteins, and nucleic acids
- D. sugar, starch, and proteins

Correct Answer: A

Section: (none)

Explanation

Explanation/Reference:

QUESTION 74 The autonomic nervous system can be divided into two branches.

What are they?

- A. sympathetic and nervous
- B. sympathetic and parasympathetic
- C. central and peripheral
- D. central and somatic

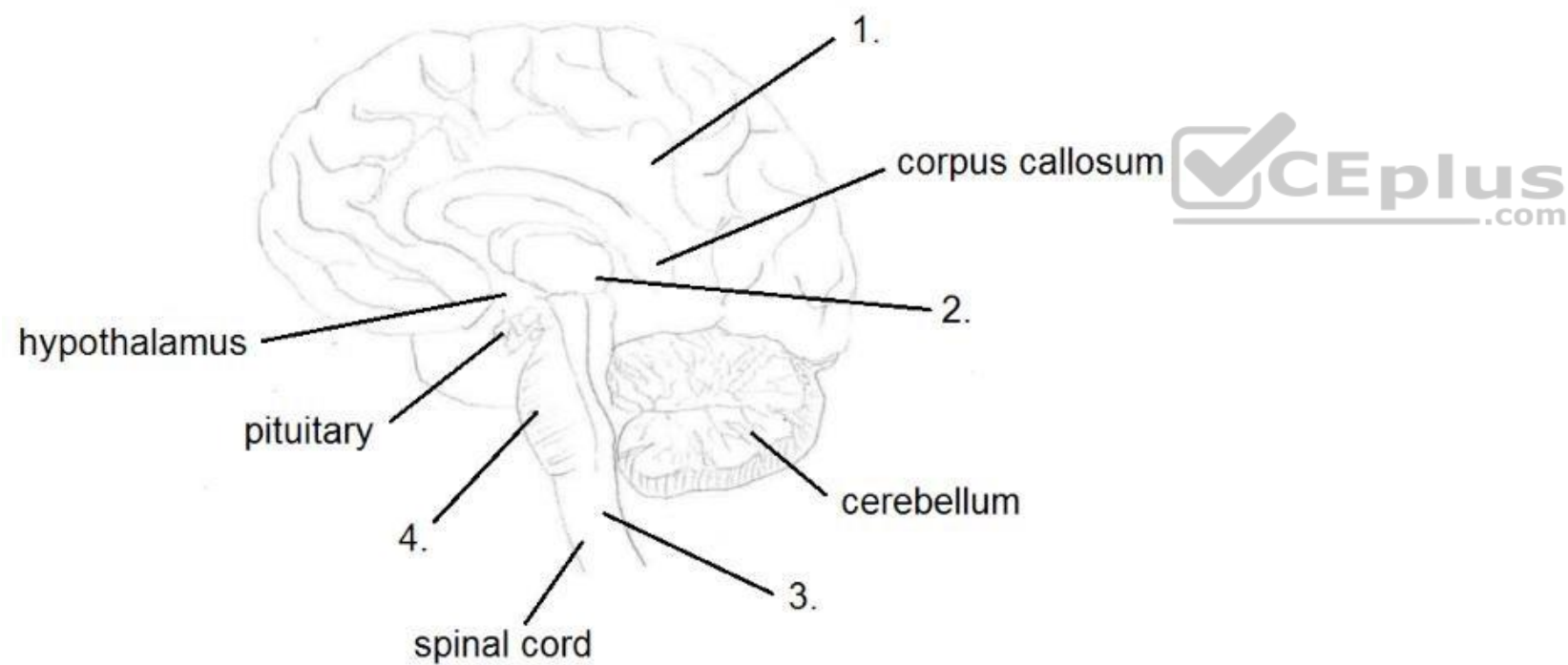
Correct Answer: B

Section: (none)

Explanation

Explanation/Reference:

QUESTION 75



In this diagram of the brain, some of the labels are missing.

What should the labels be?

- A. 1. cerebral cortex, 2. thalamus, 3. medulla oblongata, 4. pons
- B. 1. cerebellum, 2. grey matter, 3. thalamus, 4. hindbrain
- C. 1. forebrain, 2. midbrain, 3. brain stem, 4. pons
- D. 1. hippocampus, 2. fornix, 3. midbrain, 4. pons

Correct Answer: A

Section: (none)

Explanation

Explanation/Reference:

QUESTION 76 What set of signals is the vagus nerve responsible for conveying?

- A. signals from the eye
- B. signals from the jaw
- C. balance signals from the inner ear
- D. signals from abdominal organs

Correct Answer: D

Section: (none)

Explanation

Explanation/Reference:

QUESTION 77 What name is given to the space between the axon of one neuron and the dendrite of the next?

- A. the band gap
- B. nerve impulse
- C. the neurotransmitter
- D. the synapse

Correct Answer: D

Section: (none)

Explanation

Explanation/Reference:

QUESTION 78 Which of these is not regulated by the parasympathetic nervous system?

- A. increased glandular activity
- B. slowed heart rate
- C. increased intestinal activity
- D. constricted blood vessels

Correct Answer: D

Section: (none)

Explanation

Explanation/Reference:

QUESTION 79 Which valves are responsible for the sound of the heartbeat?

- A. the hypertension valves
- B. the atrioventricular and semilunar valves
- C. the systole valves
- D. the hydraulic and solenoid valves

Correct Answer: B

Section: (none)

Explanation

Explanation/Reference:

QUESTION 80 What does the sympathetic portion of the autonomic nervous system control?

- A. breathing
- B. the “fight or flight” response to threats
- C. shivering when cold
- D. swallowing

Correct Answer: B

Section: (none)

Explanation

Explanation/Reference: