

ROUND ROBIN 5

TOSS-UP

1) **PHYSICAL SCIENCE** *Multiple Choice* When an airplane's ailerons move in opposite directions they usually cause a plane to:

- W) pitch
- X) yaw
- Y) roll
- Z) stall

ANSWER: Y) ROLL

BONUS

1) **PHYSICAL SCIENCE** *Multiple Choice* Calcium, strontium, and barium are commonly called what kind of elements?

- W) halides
- X) inert
- Y) alkali metals
- Z) alkaline earth

ANSWER: Z) ALKALINE

TOSS-UP

2) **EARTH SCIENCE** *Multiple Choice* In which of the geological time periods, did dinosaurs first appear:

- W) Jurassic
- X) Triassic
- Y) Cretaceous
- Z) Tertiary

ANSWER: X) TRIASSIC

BONUS

2) **EARTH SCIENCE** *Short Answer* In what layer of the Earth's atmosphere does most of our weather occur?

ANSWER: TROPOSPHERE

TOSS-UP

3) MATH *Short Answer* If 2 sides of a quadrilateral are parallel and the other sides are equal but NOT parallel, what is the quadrilateral known as?

ANSWER: TRAPEZOID

BONUS

3) MATH *Short Answer* Find the area of a triangle whose base is 8 and whose height is 6:

ANSWER: 24

(Solution: $A = 1/2bh$)

TOSS-UP

4) LIFE SCIENCE *Multiple Choice* A series of amino acids joined together will make a:

- W) polysaccharide
- X) DNA
- Y) sugar
- Z) protein

ANSWER: Z) PROTEIN

BONUS

4) LIFE SCIENCE *Multiple Choice* When a nerve message reaches the end of an axon it sends a message or impulse across the space between the nerves to continue its message to the next nerve by a substance best known as:

- W) synaptic nodes
- X) neuromotor stimuli
- Y) neurotransmitters
- Z) intersynaptic dosimeters

ANSWER: Y) NEUROTRANSMITTERS

TOSS-UP

5) **PHYSICAL SCIENCE** *Multiple Choice* Which of the following moves in the form of a longitudinal compression wave:

- W) ocean wave
- X) sound wave
- Y) light wave
- Z) electromagnetic wave

ANSWER: X) SOUND WAVE

BONUS

5) **PHYSICAL SCIENCE** *Short Answer* What is the resistance of an electric drill that draws 8 amps on a 120 volt line?

ANSWER: 15 OHMS

(Solution: $I = V/R$, $R = V/I$, $R = 120/8 = 15$)

TOSS-UP

6) **GENERAL SCIENCE** *Short Answer* Ergot, *Amanita muscaris*, *Penicillium* and smut are all organisms that belong to which one of the five classical Kingdoms of life?

ANSWER: FUNGI

BONUS

*6) **GENERAL SCIENCE** *Multiple Choice* When the moon appears through the night as a thin crescent, the sun's light:

- W) is being blocked by the earth
- X) still illuminates about half the surface of the moon
- Y) is only hitting the crescent region
- Z) only shines during the day

ANSWER: X) STILL ILLUMINATES ABOUT HALF THE SURFACE OF THE MOON

TOSS-UP

7) **MATH** *Multiple Choice* If a biker traveled at an average speed of 3 meters/second for 100 seconds, the length of the biker's path was about:

- W) 33 meters
- X) 300 meters
- Y) 100 meters
- Z) 1 kilometer

ANSWER: X) 300 METERS

BONUS

7) **MATH** *Short Answer* If a perfect number is an integer equal to the sum of all its divisors, except the number itself, what is the lowest perfect number?

ANSWER: 6

(Solution: $6 = 1 + 2 + 3$)

TOSS-UP

8) **LIFE SCIENCE** *Multiple Choice* Most animal eukaryotic cells have:

- W) a cell wall, nucleus, and cytoplasm
- X) a plasma membrane, nucleus, and cytoplasm
- Y) a cell wall, nucleus, and nucleolus
- Z) a cell wall, nucleus, and mitochondrion

ANSWER: X) A PLASMA MEMBRANE, NUCLEUS, AND CYTOPLASM

BONUS

8) **LIFE SCIENCE** *Short Answer* What is the term used by Charles Darwin that he believed was the principle mechanism of evolution and way that nature chose certain members of a population to survive over others?

ANSWER: NATURAL SELECTION

TOSS-UP

9) GENERAL SCIENCE *Short Answer* In order from the beginning, what are the first 5 letters of the Greek alphabet?

ANSWER: alpha, beta, gamma, delta, epsilon

BONUS

9) GENERAL SCIENCE *Short Answer* Rounded to the nearest whole number, what is the temperature in Fahrenheit of a substance at -40°C ?

ANSWER: -40

TOSS-UP

10) MATH *Short Answer* Identify the quotient, dividend, and divisor for $15 \div 3$:

ANSWER: QUOTIENT = 5; DIVIDEND = 15; DIVISOR = 3

BONUS

10) MATH *Short Answer* Give the product of $(x + 7)^2$ in standard form:

ANSWER: $x^2 + 14x + 49$

TOSS-UP

11) **PHYSICAL SCIENCE** *Multiple Choice* Ultrasonic sound frequencies are typically considered to be

- W) above 20,000 kilohertz
- X) below 20,000 kilohertz
- Y) above 20,000 Hertz
- Z) below 20,000 Hertz

ANSWER: Y) ABOVE 20,000 HERTZ

BONUS

11) **PHYSICAL SCIENCE** *Multiple Choice* Predict which object made of the following metal will sink in a pool of Mercury, which has a density 13.5 grams per cubic centimeter:

- W) aluminum, which has a density of 2.6 grams per cubic centimeter
- X) iron, which has a density of 7.9 grams per cubic centimeter
- Y) lead, which has a density of 11.34 grams per cubic centimeter
- Z) uranium, which has a density of 19.5 grams per cubic centimeter

ANSWER: Z) URANIUM, WHICH HAS A DENSITY OF 19.5 GRAMS PER CUBIC CENTIMETER

TOSS-UP

12) **EARTH SCIENCE** *Short Answer* In what layer of the Earth's atmosphere does most of our weather occur?

ANSWER: TROPOSPHERE

BONUS

12) **EARTH SCIENCE** *Short Answer* Lines on a weather map connecting places of equal air pressure are called:

ANSWER: ISOBARS

TOSS-UP

13) LIFE SCIENCE *Short Answer* What main artery carries oxygenated blood immediately away from left ventricle of the heart?

ANSWER: AORTA

BONUS

13) LIFE SCIENCE *Short Answer* What is the vector that transmits Rocky Mountain Spotted Fever to humans?

ANSWER: THE TICK (ACCEPT: DERMACENTAR)

TOSS-UP

14) GENERAL SCIENCE *Short Answer* On the Kelvin temperature scale give the whole number value that is the closest to absolute zero.

ANSWER: 0

BONUS

14) GENERAL SCIENCE *Multiple Choice* Stars appear to have different colors because they have different:

- W) distances
- X) ages
- Y) temperatures
- Z) names

ANSWER: Y) TEMPERATURES

TOSS-UP

15) MATH *Short Answer* Solve the following equation: $-4 + x = -5$

ANSWER: -1

BONUS

15) MATH *Short Answer* Give the median for the following data set: 32, 59, 68, 70, 84

ANSWER: 68

(Solution: mean or average is 62.6; median is middle, not average)

TOSS-UP

16) EARTH SCIENCE *Short Answer* Identify the type of structure associated with the following man-made structures in the United States: Hungry Horse, Yellowtail, Glen Canyon, Grand Coulee, and Hoover

ANSWER: DAMS

BONUS

16) EARTH SCIENCE *Short Answer* What is the name of the boundary between the troposphere and the stratosphere?

ANSWER: TROPOPAUSE

TOSS-UP

17) PHYSICAL SCIENCE *Multiple Choice* The electrons that are shared in chemical bonds between atoms are most accurately called:

- W) inner electrons
- X) quantum electrons
- Y) valence electrons
- Z) jumping electrons

ANSWER: Y) VALENCE ELECTRONS

BONUS

17) PHYSICAL SCIENCE *Multiple Choice* In grams per milliliter, which of the following is closest to the density of ice:

- W) 0.26
- X) 0.92
- Y) .99
- Z) 3.00

ANSWER: Y) .99

TOSS-UP

18) LIFE SCIENCE *Short Answer* What is the protein found in red blood cells that carries oxygen:

ANSWER: HEMOGLOBIN

BONUS

18) LIFE SCIENCE *Short Answer* What is the vector for the germ which caused the black plague?

ANSWER: FLEA

TOSS-UP

19) EARTH SCIENCE *Short Answer* With a Mohs' hardness of 10, what is the hardest mineral known?

ANSWER: DIAMOND

BONUS

19) EARTH SCIENCE *Short Answer* Most of the ozone in the Earth's atmosphere is present in which layer?

ANSWER: STRATOSPHERE

TOSS-UP

20) GENERAL SCIENCE *Short Answer* What is the mineral that has tricked so many people into thinking it was the real precious metal gold that its common name is "fool's gold" ?

ANSWER: IRON PYRITE

BONUS

20) GENERAL SCIENCE *Multiple Choice* Early astronomers observed lights that wandered among the stars, today we know these are:

- W) sun spots
- X) asteroid belts
- Y) constellations
- Z) planets

ANSWER: Z) PLANETS

TOSS-UP

21) GENERAL SCIENCE *Short Answer* What is the term used for the unusual infectious agents that cause mad cow disease?

ANSWER: PRIONS

BONUS

21) GENERAL SCIENCE *Short Answer* George Washington Carver found over 100 uses for the organic molecules derived from what common plant?

ANSWER: PEANUT

TOSS-UP

22) EARTH SCIENCE *Short Answer* What is the name of the form of oxygen that is present in the atmosphere that protects life on Earth by absorbing much of the ultraviolet radiation from the sun?

ANSWER: OZONE (ACCEPT: O₃)

BONUS

22) EARTH SCIENCE *Short Answer* What are the names of the tides that occur when the sun's tidal bulges and the moon's tidal bulges are at right angles to each other?

ANSWER: NEAP TIDES

TOSS-UP

23) MATH *Short Answer* The identity element for multiplication is what number?

ANSWER: 1

BONUS

23) MATH *Short Answer* After a discount of 20%, the price of a motorcycle was \$10,000. What was the original price of the motorcycle?

ANSWER: \$12,500.00

TOSS-UP

24) LIFE SCIENCE *Short Answer* Mendel did most of his original experimentation using this type of plant:

ANSWER: PEA

BONUS

24) LIFE SCIENCE *Short Answer* Where is intercellular fluid normally found?

ANSWER: OUTSIDE OF CELLS (ACCEPT: IN BETWEEN CELLS OR IN THE INTERSTITIUM)

TOSS-UP

25) **PHYSICAL SCIENCE** *Short Answer* Whole multiples of the fundamental tone are usually called:

ANSWER: HARMONICS (ACCEPT: HARMONIC OVERTONES OR PERFECT OVERTONES)

BONUS

25) **PHYSICAL SCIENCE** *Short Answer* If an atom of fluorine has an atomic number of 9 and an atomic mass of 18.998 , how many protons and neutrons are in the nucleus?

ANSWER: 9 PROTONS, 10 NEUTRONS