

## ROUND ROBIN 2

### TOSS-UP

1) GENERAL SCIENCE *Short Answer* What plant was brought over from the Americas to Europe in the 1500's and although was first thought to be poisonous soon became a staple because it had a high yield per acre and could be left un-harvested until needed.

ANSWER: POTATO

### BONUS

1) GENERAL SCIENCE *Short Answer* Pure gold is how many karats?

ANSWER: 24

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### TOSS-UP

2) EARTH SCIENCE *Multiple Choice* In meteorology, what is another name for a region of high pressure?

- W) Anticyclone
- X) Cyclone
- Y) Front
- Z) Squall

ANSWER: W) ANTICYCLONE

### BONUS

2) EARTH SCIENCE *Multiple Choice* Marble is a metamorphic rock that is often used for buildings and statues. What is the sedimentary rock that marble is commonly derived from?

- W) Limestone
- X) Marle
- Y) Shale
- Z) Sandstone

ANSWER: W) LIMESTONE

### TOSS-UP

3) MATHEMATICS *Short Answer* Two angles are supplementary. If one angle measures  $60^\circ$ , what would the other angle measure?

ANSWER:  $120^\circ$

### BONUS

3) MATHEMATICS *Short Answer* Simplify the ratio of the following factorial:  $\frac{4!}{6!}$  (read as: 4 factorial divided by 6 factorial)

ANSWER:  $1/30$  (ACCEPT: 0.033)

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### TOSS-UP

4) LIFE SCIENCE *Multiple Choice* Which of the following organisms is probably the most commonly studied prokaryote?

- W) *E. coli*
- X) *C. elegans*
- Y) *M. musculus*
- Z) *H. sapiens*

ANSWER: W) *E. COLI*

### BONUS

4) LIFE SCIENCE *Multiple Choice* Most of the wood in a typical 100 year old oak tree is made of which of the following cells?

- W) cork cells
- X) phloem
- Y) epidermis
- Z) xylem

ANSWER: Z) XYLEM

### TOSS-UP

5) PHYSICAL SCIENCE *Short Answer* What is the most common scientific term for the chemical reaction in which oxygen combines with a substance or hydrogens are removed from a substance?

ANSWER: OXIDATION

### BONUS

5) PHYSICAL SCIENCE *Multiple Choice* Which of the following is NOT true?

- W) for two pots of boiling water the one which is boiling faster has the hottest water
- Y) when water changes from a gas to a liquid, energy is released
- X) the process of condensation is opposite to that of evaporation
- Z) absolute zero is the point where all thermal motion stops

ANSWER: W) FOR TWO POTS OF BOILING WATER THE ONE WHICH IS BOILING FASTER HAS THE HOTTEST WATER

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### TOSS-UP

6) GENERAL SCIENCE *Multiple Choice* A severe and chronic deficiency in what vitamin causes the disease known as pellagra:

- W) vitamin C
- X) vitamin D
- Y) niacin
- Z) thiamine

ANSWER: Y) NIACIN

### BONUS

6) GENERAL SCIENCE *Multiple Choice* If a wind turbine with a 1 meter diameter is replaced with a wind turbine 3 meters in diameter, what is the increase in sweep areas for the turbine rotor or blades?

- W) 3 times
- X) 5 times
- Y) 7 times
- Z) 9 times

ANSWER: Z) 9 TIMES

### TOSS-UP

7) EARTH SCIENCE *Multiple Choice* Which of the following features is not usually associated with Shield Volcanoes?

- W) Broad and Gently Sloping
- X) Made primarily of Highly Fluid Basaltic Lavas
- Y) They are commonly considered to be the most explosive and dangerous type of volcano.
- Z) Fissure eruptions are common on the flanks of these volcanoes.

ANSWER: Y) THEY ARE COMMONLY CONSIDERED TO BE THE MOST EXPLOSIVE AND DANGEROUS TYPE OF VOLCANO.

### BONUS

7) EARTH SCIENCE *Short Answer* Which Hawaiian God is said to control volcanic eruptions and the direction of lava flows?

ANSWER: PELE

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### TOSS-UP

8) MATHEMATICS *Multiple Choice* A right triangle with sides of integer length has a ratio of leg lengths of 3:4. What is a possible length of the hypotenuse?

- W) 7
- X) 12
- Y) 15
- Z) 21

ANSWER: Y) 15

### BONUS

8) MATHEMATICS *Short Answer* Simplify:  $5 \div 5 \div 5 \div \frac{1}{5}$  (read "five divided by five divided by five divided by one fifth").

ANSWER: 1

### TOSS-UP

9) LIFE SCIENCE *Multiple Choice* The nucleolus is the primary site for the manufacture of which of the following?

- W) ribosomes
- X) Protein
- Y) Lipid
- Z) messenger RNA

ANSWER: W) RIBOSOMES

### BONUS

9) LIFE SCIENCE *Multiple Choice* The evolution of flowers in many plants is believed to have depended most directly on the presence and evolution of which of the following:

- W) insect pollinators
- X) certain predatory carnivores
- Y) symbiotic plant viruses
- Z) fungi

ANSWER: W) INSECT POLLINATORS

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### TOSS-UP

10) PHYSICAL SCIENCE *Multiple Choice* Ionic compounds are most commonly formed between what two types of elements?

- W) Nonmetals and nonmetals
- X) Metals and metals
- Y) Metals and nonmetals
- Z) Metalloids and nonmetals

ANSWER: Y) METALS AND NONMETALS

### BONUS

10) PHYSICAL SCIENCE *Multiple Choice* Which of the following is a diatomic molecule?

- W) H<sub>2</sub>O
- X) methane
- Y) H<sub>2</sub>
- Z) NaCl

ANSWER: Y) H<sub>2</sub>

### TOSS-UP

11) GENERAL SCIENCE *Multiple Choice* The mass of a new 2002 USA quarter is about how many grams:

- W) 1.0
- X) 2.5
- Y) 5.5
- Z) 7.0

ANSWER: Y) 5.5

### BONUS

11) GENERAL SCIENCE *Short Answer* If you have 1 milliliter of a 75% ethanol solution, how much water, in milliliters, must be added to the 1 milliliter to obtain a 25% ethanol solution?

ANSWER: 2

(Solution:  $75\%/25\% = 3df$ ; 1 part stock + 2 parts water = 3df)

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### TOSS-UP

12) EARTH SCIENCE *Short Answer* What wind currents help move the return flow of water in the polar regions to the east?

ANSWER: THE WESTERLIES

### BONUS

12) EARTH SCIENCE *Short Answer* Order the following four minerals from the hardest to the softest, according to Mohr's hardness scale: Talc, Calcite, Diamond, Topaz.

ANSWER: DIAMOND, TOPAZ, CALCITE, TALC

### TOSS-UP

13) MATHEMATICS *Multiple Choice* Simplify:  $\frac{x^8 x^4}{x^2}$  (quantity x to the 8<sup>th</sup> times x to the 4<sup>th</sup> divided by x squared)

- W)  $x^{16}$
- X)  $x^{10}$
- Y)  $x^6$
- Z)  $x^4$

ANSWER: Y)  $x^6$

### BONUS

13) MATHEMATICS *Short Answer* A recipe calls for flour, sugar and butter to be mixed in a ratio of 7 to 5 to 2, respectively. Assuming there is enough sugar and butter to use all the flour and 20 pounds of flour is available, how many pounds of the mixture can be made?

ANSWER: 40

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### TOSS-UP

14) LIFE SCIENCE *Multiple Choice* What is the joint that is formed by the direct interaction of the tibia, fibula, and femur?

- W) wrist
- X) knee
- Y) elbow
- Z) ankle

ANSWER: X) KNEE

### BONUS

14) LIFE SCIENCE *Short Answer* What is the nitrogen-containing base present in RNA that is not present in DNA?

ANSWER: URACIL

### TOSS-UP

15) PHYSICAL SCIENCE *Multiple Choice* The time required for the Moon to return to the same position relative to the background stars (as seen from Earth) is *about* how long?

- W) A day
- X) A week
- Y) A month
- Z) A year

ANSWER: Y) A MONTH

### BONUS

15) PHYSICAL SCIENCE *Short Answer* A force that produces an acceleration of 2 meters per second per second when applied to a half-kilogram object is a force of how many Newtons?

ANSWER: ONE

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### TOSS-UP

16) GENERAL SCIENCE *Multiple Choice* Methods that cause human hair to have curls usually rely on manipulating which of the following types of hair molecules?

- W) carbohydrates
- X) lipids
- Y) amino acids
- Z) DNA

ANSWER: Y) AMINO ACIDS

### BONUS

16) GENERAL SCIENCE *Multiple Choice* Rust and smut are plant disease that attack plants such as wheat, rye or corn. Both rust and smut are classified as what type of organisms.

- W) viruses
- X) larval insects
- Y) bacteria
- Z) fungi

ANSWER: Z) FUNGI



### TOSS-UP

17) EARTH SCIENCE *Multiple Choice* What does the prefix “alto” indicate when describing clouds?

- W) Deep
- X) High
- Y) Low
- Z) Shallow

ANSWER: X) HIGH

### BONUS

17) EARTH SCIENCE *Multiple Choice* 70% of all the Fresh Water on Earth is found in:

- W) The Caspian Sea
- X) Lake Baikal
- Y) The Great Lakes
- Z) Antarctica

ANSWER: Z) ANTARCTICA

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### TOSS-UP

18) MATHEMATICS *Multiple Choice* Two angles whose sum is a right angle are best described as:

- W) complementary
- X) supplementary
- Y) adjacent
- Z) corresponding

ANSWER: W) COMPLEMENTARY

### BONUS

18) MATHEMATICS *Short Answer* Twelve blue socks and twelve white socks are loose and mixed up in a drawer. If you try to select them in the dark, how many socks do you need to take from the drawer to be sure that you have a matching pair?

ANSWER: 3

### TOSS-UP

19) LIFE SCIENCE *Multiple Choice* The antibiotic penicillin halts bacterial growth by doing which of the following?

- W) Interfering with the synthesis of the bacterial cell wall
- X) Interfering with the synthesis of bacterial ribosomes
- Y) Preventing gene transcription
- Z) Preventing attachment of messenger RNA to the ribosome

ANSWER: W) INTERFERING WITH THE SYNTHESIS OF THE BACTERIAL CELL WALL

### BONUS

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

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

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### TOSS-UP

20) PHYSICAL SCIENCE *Multiple Choice* Which of the following describes a liquid in which visible particles settle?

- W) Solution
- X) Homogeneous mixture
- Y) Colloid
- Z) Suspension

ANSWER: Z) SUSPENSION

### BONUS

20) PHYSICAL SCIENCE *Short Answer* What aqueous acid primarily results from the production of acid rain?

ANSWER: SULFURIC ACID (ACCEPT:  $\text{H}_2\text{SO}_4$ )

### TOSS-UP

21) GENERAL SCIENCE *Multiple Choice* If you need to measure 100 milliliters of room temperature water, which of the following would be the most accurate instrument to use:

- W) 100 milliliter Erlenmeyer flask
- X) 100 milliliter graduated cylinder
- Y) 100 milliliter beaker
- Z) 200 milliliter volumetric flask

ANSWER: X) 100 MILLILITER GRADUATED CYLINDER

### BONUS

21) GENERAL SCIENCE *Short Answer* What is the most common term for the Doppler shift for light from a distant galaxy that is moving away from the Earth?

ANSWER: RED SHIFT (ACCEPT: RED SHIFTED)

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### TOSS-UP

22) EARTH SCIENCE *Multiple Choice* Water is released into the atmosphere by plants through a process know as.

- W) Teleportation
- X) Transfiguration
- Y) Transpiration
- Z) Transportation

ANSWER: Y) TRANSPIRATION

### BONUS

22) EARTH SCIENCE *Short Answer* Limestone is a sedimentary rock often associated with cave formation. What is the name of the weak acid that is primarily responsible for the creation of these caves?

ANSWER: CARBONIC (ACCEPT:  $\text{H}_2\text{CO}_3$ ).

**TOSS-UP**

23) MATHEMATICS *Multiple Choice* Simplify:  $(10^{10})^{-10}$  (Read as: parentheses ten to the tenth power close parentheses to the negative tenth power)

- W)  $10^{20}$
- X)  $10^2$
- Y)  $10^{-100}$
- Z) 10 billion

ANSWER: Y)  $10^{-100}$

**BONUS**

23) MATHEMATICS *Short Answer* If two consecutive months in a calendar year each have a Friday the 13th, what months would they be?

ANSWER: February and March

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**TOSS-UP**

24) LIFE SCIENCE *Short Answer* Silviculture is a branch of agricultural science that is concerned with the development and care of what?

ANSWER: FORESTS (ACCEPT: TREES)

**BONUS**

24) LIFE SCIENCE *Short Answer* In a mating between a color blind human male and a normal vision female with a color blind father, what is the percentage chance a son would be color blind?

ANSWER: 50%

### TOSS-UP

25) PHYSICAL SCIENCE *Short Answer* What is the most common term used for sound wave frequencies greater than 20,000 Hertz?

ANSWER: ULTRASONIC

### BONUS

25) PHYSICAL SCIENCE *Multiple Choice* Which of the following is not considered a true force?

- W) gravity
- X) electromagnetic
- Y) centrifugal
- Z) strong nuclear force

ANSWER: Y) CENTRIFUGAL