

## ROUND ROBIN 6

### TOSS-UP

1) **LIFE SCIENCE** *Multiple Choice* Which of the following accounts for the largest increase in cancer death rate in the USA between the years 1900 and 1990:

- W) lung
- X) breast
- Y) colon
- Z) stomach

ANSWER: W) LUNG

### BONUS

1) **LIFE SCIENCE** *Multiple Choice* The structure of DNA proposed by Watson and Crick was partly based on the x-ray work of:

- W) Louis Pasteur
- X) Rosalind Franklin
- Y) Linus Pauling
- Z) Eleonore Rubinstein

ANSWER: X) ROSALIND FRANKLIN

### TOSS-UP

2) **PHYSICAL SCIENCE** *Multiple Choice* If light is passed through two pin holes and the patterns allowed to overlap on a wall, the pattern produced by the intersection of waves is called:

- W) an intersection pattern
- X) an interference pattern
- Y) an arcing pattern
- Z) a construction pattern

ANSWER: X) AN INTERFERENCE PATTERN

### BONUS

2) **PHYSICAL SCIENCE** *Short Answer* Add a second proton and two neutrons to the hydrogen nucleus and you have which element?

ANSWER: HELIUM (ACCEPT: He)

### TOSS-UP

**\*3) GENERAL SCIENCE** *Multiple Choice* To guard against sparks causing a fire, mechanics aboard submarines during World War II often used tools made from which of the following:

- W) chrome plated steel
- X) vanadium
- Y) cold rolled steel
- Z) bronze

ANSWER: Z) BRONZE

### BONUS

**\*3) GENERAL SCIENCE** *Multiple Choice* The shape of galaxies, stars, planets and their orbits is mostly attributed to:

- w) light
- x) matter
- y) electricity
- z) gravity

ANSWER: Z) GRAVITY

### TOSS-UP

**4) MATH** *Short Answer* What is the sum of the internal angles of a pentagon:

ANSWER: 540°

### BONUS

**46 MATH** *Multiple Choice* Assuming a year in a dog's life is equivalent to 7 years of a human's life, what is 1 hour of a dog's life approximately equivalent to in a human's life?

- W) 3 ½ hours
- X) 7 hours
- Y) 5 hours
- Z) 4 ½ days

ANSWER: X) 7 HOURS

### TOSS-UP

5) MATH *Multiple Choice* The longest straight line that can be drawn inside a circle is called its:

- W) radius
- X) vector
- Y) tangent
- Z) diameter

ANSWER: Z) DIAMETER

### BONUS

5) MATH *Short Answer* If you walk north for 3 miles along 1<sup>st</sup> street and make a 90 degree right turn east onto B street and then walk for another 4 miles what would be the shortest distance back to where you started, if you could walk in a straight line?

ANSWER: 5 MILES

(Solution : 3, 4, 5 right triangle)

### TOSS-UP

6) EARTH SCIENCE *Multiple Choice* If air masses move toward mountains from the west, most of the moisture will fall on the

- W) north side of the mountains
- X) south side of the mountains
- Y) west side of the mountains
- Z) east side of the mountains

ANSWER: Y) WEST SIDE OF THE MOUNTAINS

### BONUS

6) EARTH SCIENCE *Short Answer* Order the following periods of geological time from oldest to youngest: Jurassic, Cambrian, Triassic,

ANSWER: CAMBRIAN; TRIASSIC; JURASSIC

**TOSS-UP**

7) **PHYSICAL SCIENCE** *Short Answer* Which planet is the brightest when viewed from Earth?

ANSWER: VENUS

**BONUS**

7) **PHYSICAL SCIENCE** *Short Answer* If an atom of carbon has an atomic number of 6 and an atomic mass of 12.01, how many protons and neutrons are in the nucleus?

ANSWER: 6 PROTONS, 6 NEUTRONS

**TOSS-UP**

8) **LIFE SCIENCE** *Short Answer* In the traditional 5 Kingdom classification of organisms, four of the 5 Kingdoms are Animalia, Plantae, Fungi, and Protista. What is the fifth?

ANSWER: MONERA

**BONUS**

2) **LIFE SCIENCE** *Short Answer* Give the scientific names for the four chambers of the human heart:

ANSWER: LEFT VENTRICLE, RIGHT VENTRICLE, LEFT ATRIUM, RIGHT ATRIUM  
(ACCEPT IN ANY ORDER)



### TOSS-UP

9) EARTH SCIENCE *Multiple Choice* Which of the following dominates the gasses in the Earth's atmosphere, making up some 78% of the air by volume:

- W) nitrogen
- X) oxygen
- Y) helium
- Z) hydrogen

ANSWER: W) NITROGEN

### BONUS

9) EARTH SCIENCE *Multiple Choice* Metamorphism transforms limestone into a metamorphic rock called:

- W) quartzite
- X) marble
- Y) hornfel
- Z) granite

ANSWER: X) MARBLE

### TOSS-UP

10) GENERAL SCIENCE *Short Answer* This powerful telescope weighs about 11 tons, has a primary mirror 7.9 feet in diameter, and orbits about 380 miles above the earth:

ANSWER: THE HUBBLE TELESCOPE

### BONUS

10) GENERAL SCIENCE *Multiple Choice* Which of the following is NOT commonly thought of as an input device:

- W) scanner
- X) printer
- Y) touch-screen video screen
- Z) speaker

ANSWER: X) PRINTER

**TOSS-UP**

**11) LIFE SCIENCE** *Multiple Choice* Which of the following is a feeding structure in arachnids:

- W) dentipalps
- X) radula
- Y) proboscis
- Z) chelicerae (PRONOUNCED Chill-iss-er-ah)

ANSWER: Z) CHELICERAE

**BONUS**

**11) LIFE SCIENCE** *Multiple Choice* In humans, ovulation usually occurs how many days before the start of the next menstrual period:

- W) 4
- X) 9
- Y) 14
- Z) 21

ANSWER: Y) 14

**TOSS-UP**

**10) PHYSICAL SCIENCE** *Short Answer* What color light is produced by adding equal amounts of red, green, and blue light?

ANSWER: WHITE

**BONUS**

**10) PHYSICAL SCIENCE** *Short Answer* Name the most common disaccharide, known as milk sugar, that is found in milk.

ANSWER: LACTOSE

**TOSS-UP**

13) **MATH** *Short Answer* Convert  $\frac{3}{20}$  into a percentage:

ANSWER: 15%

(Solution =  $15/100 = 15\%$ )

**BONUS**

13) **MATH** *Short Answer* Solve the following equation:  $6x - 8 = 8 - 10x$

ANSWER: 1

(ACCEPT:  $x = 1$ )

**TOSS-UP**

14) **LIFE SCIENCE** *Multiple Choice* Which of the following plants traps and digests insects:

- W) begonia
- X) bird of paradise
- Y) sun dew
- Z) lady's slipper

ANSWER: Y) SUN DEW

**BONUS**

14) **LIFE SCIENCE** *Multiple Choice* In human nerves, the nerve impulse or message occurs primarily because of the movement of ions of what two elements across the cell membranes of nerves:

- W) sodium and potassium
- X) potassium and calcium
- Y) calcium and sodium
- Z) calcium and magnesium

ANSWER: W) SODIUM AND POTASSIUM

**TOSS-UP**

**\*15) GENERAL SCIENCE** *Multiple Choice* An autoclave would often be used by which of the following scientists?

- W) cosmologist
- X) microbiologist
- Y) paleontologist
- Z) philologist

ANSWER: X) MICROBIOLOGIST

**BONUS**

**15) GENERAL SCIENCE** *Short Answer* Which ones, if any, of the following elements are liquids at standard temperature and pressure: chlorine, bromine, mercury, selenium?

ANSWER: BROMINE AND MERCURY

**TOSS-UP**

**16) EARTH SCIENCE** *Multiple Choice* What happened in 1815 to cause that year to be named “the year without a summer?”

- W) a large meteor struck the Earth
- X) a large volcano erupted
- Y) there was a radical shift in the jet-stream southward
- Z) several large earthquakes occurred simultaneously around the globe

ANSWER: X) A LARGE VOLCANO ERUPTED

**BONUS**

**16) EARTH SCIENCE** *Multiple Choice* When, in the geologic column, did dinosaurs become extinct?

- W) at the Cretaceous-Tertiary boundary
- X) at the Jurassic-Cretaceous boundary
- Y) at the Triassic-Jurassic boundary
- Z) at the Permian-Triassic boundary

ANSWER: W) AT THE CRETACEOUS-TERTIARY BOUNDARY

### TOSS-UP

17) **GENERAL SCIENCE** *Multiple Choice* The common mineral beryl, when found in its green crystalline form, is most commonly known as what gem stone:

- W) emerald
- X) opal
- Y) malachite
- Z) septantaine

ANSWER: W) EMERALD

### BONUS

17) **GENERAL SCIENCE** *Multiple Choice* The unique property of carbon that is important to living organisms is its ability to:

- W) conduct electricity in graphite form.
- X) combine with other elements
- Y) form long chains of carbon atoms
- Z) exist as both diamond and graphite

ANSWER: Y) FORM LONG CHAINS OF CARBON ATOMS

### TOSS-UP

18) **MATH** *Short Answer* Convert the decimal fraction 0.055 into its common fraction:

ANSWER:  $\frac{55}{1000}$  (ACCEPT:  $55/10^3$  and  $11/200$ )

### BONUS

18) **MATH** *Short Answer* Solve the following equation:  $-2 + x = 5$

ANSWER: 7



### TOSS-UP

19) **PHYSICAL SCIENCE** *Short Answer* When Natalie rides in a circle on her horse she perceives a force which tends to throw her off her horse to the outside of the ring. What is the common name for this fictitious force center fleeing force:

ANSWER: CENTRIFUGAL FORCE

### BONUS

19) **PHYSICAL SCIENCE** *Short Answer* If an atom of gold has an atomic number of 79 and an atomic mass of 197, how many protons and neutrons are in the nucleus?

ANSWER: 79 PROTONS, 118 NEUTRONS

### TOSS-UP

20) **LIFE SCIENCE** *Multiple Choice* Which of the following is the organ mainly responsible for producing digestive enzymes and insulin:

- W) spleen
- X) liver
- Y) thyroid
- Z) pancreas

ANSWER: Z) PANCREAS

### BONUS

20) **LIFE SCIENCE** *Short Answer* Made up of barbs, calami, and shafts these are one of the most distinctive structures of the vertebrate class Aves.

ANSWER: FEATHERS

### TOSS-UP

21) **PHYSICAL SCIENCE** *Multiple Choice* Which of the following musical instruments can produce a pure tone:

- W) violin
- X) clarinet
- Y) piano
- Z) electronic synthesizer

ANSWER: Z) ELECTRONIC SYNTHESIZER

### BONUS

21) **PHYSICAL SCIENCE** *Short Answer* Which is the lightest metal in the group known in the periodic table as the alkali metals?

ANSWER: LITHIUM (ACCEPT: Li)

### TOSS-UP

22) **EARTH SCIENCE** *Short Answer* What is the name given to the tides that occur during the new moon and full moon?

ANSWER: SPRING TIDES

### BONUS

22) **EARTH SCIENCE** *Multiple Choice* In limestone formations, the development of caves requires water and which of the following:

- W) oxygen
- X) nitrogen
- Y) carbon monoxide
- Z) carbon dioxide

ANSWER: Z) CARBON DIOXIDE

**TOSS-UP**

23) MATH *Short Answer* What is the formula for the volume of a sphere of radius R:

ANSWER:  $\frac{4}{3} \pi R^3$

**BONUS**

23) MATH *Short Answer* Which of the following are rational numbers:

-8,  $-\sqrt{3}$ ,  $1/5$ , 0,  $\pi$  (pronounced: pie)

ANSWER: -8,  $1/5$ , 0

**TOSS-UP**

24) GENERAL SCIENCE *Short Answer* What is the name for the outermost layer of the sun?

ANSWER: CORONA

**BONUS**

24) GENERAL SCIENCE *Short Answer* Kevin wishes to look at the stars with his binoculars. He also wants to look at a star chart with a flashlight, but he knows a regular white light will interfere with the sensitivity of his eyes to dim light. What color light is best for his flashlight?

ANSWER: RED

### TOSS-UP

25) EARTH SCIENCE *Multiple choice* The typical thunderstorm clouds of summer, sometimes referred to as hammerheads or thunderheads, are called:

- W) cumulonimbus
- X) altocumulus
- Y) stratocumulus
- Z) cirrocumulus

ANSWER: W) CUMULONIMBUS

### BONUS

25) EARTH SCIENCE *Multiple Choice* About how far away is the closest star to the Earth?

- W) 83 thousand miles
- X) 19 million miles
- Y) 93 million miles
- Z) 2 light years

ANSWER: Y) 93 MILLION MILES