

ROUND 6

TOSS-UP

1) LIFE SCIENCE *Multiple Choice* Which of the following is the MOST common manner for transmission of beef tapeworms to humans:

- W) drinking contaminated water
- X) swimming in contaminated water
- Y) eating uncooked beef
- Z) stepping in cow manure

ANSWER: Y) EATING UNCOOKED BEEF

BONUS

1) LIFE SCIENCE *Multiple Choice* Which of the following is a segmented worm:

- W) hook worm
- X) earthworm
- Y) round worm
- Z) nematode

ANSWER: X) EARTHWORM

TOSS-UP

2) PHYSICAL SCIENCE *Short Answer* Specific gravity compares the density of various substances to that of what reference substance?

ANSWER: WATER

BONUS

2) PHYSICAL SCIENCE *Multiple Choice* Which of the following is the BEST example of a chemical reaction:

- W) an acid is added to a clear solution in a test tube and a white substance appears and falls to the bottom of the test tube
- X) milk is added to water and the water turns a milky color
- Y) molten metal hardens upon cooling
- Z) salt is dissolved in water

ANSWER: W) AN ACID IS ADDED TO A CLEAR SOLUTION IN A TEST TUBE AND A WHITE SUBSTANCE APPEARS AND FALLS TO THE BOTTOM OF THE TEST TUBE

TOSS-UP

3) EARTH SCIENCE *Short Answer* What is the name for the internal ring within a hurricane where the most intense squalls occur?

ANSWER: EYEWALL

BONUS

3) EARTH SCIENCE *Multiple Choice* As the eyewall of hurricane Katrina approached Louisiana, on which of the following sides of the hurricane were the highest speeds clocked:

- W) north
- X) south
- Y) east
- Z) west

ANSWER: W) NORTH

TOSS-UP

4) MATH *Short Answer* Evaluate the following radical: $-\sqrt{160,000}$

ANSWER: -400

BONUS

4) MATH *Short Answer* Arrange the following 4 fractions from the LARGEST to the

SMALLEST: $\frac{13}{18}, \frac{7}{12}, \frac{10}{4}, \frac{2}{12}$

ANSWER: $\frac{10}{4}, \frac{13}{18}, \frac{7}{12}, \frac{2}{12}$

TOSS-UP

5) GENERAL SCIENCE *Multiple Choice* Which of the following is closest to average barometric pressure at sea level, in millibars:

- W) 1013
- X) 760
- Y) 10
- Z) 1

ANSWER: W) 1013

BONUS

5) GENERAL SCIENCE *Short Answer* Name all of the following 4 units of the international system of units that are considered base units and NOT considered derived: Newton, kilogram, second, hertz

ANSWER: KILOGRAM AND SECOND

TOSS-UP

6) LIFE SCIENCE *Short Answer* Arachnids have how many pairs of appendages?

ANSWER: 6

BONUS

6) LIFE SCIENCE *Short Answer* Arachnids have 4 pairs of walking legs and a single pair of pedipalps. What is the name of the last pair of appendages?

ANSWER: CHELICERA

TOSS-UP

7) PHYSICAL SCIENCE *Multiple Choice* Doing a given amount of work at different rates always involves a different amount of:

- W) mass
- X) efficiency
- Y) potential energy
- Z) power

ANSWER: Z) POWER

BONUS

7) PHYSICAL SCIENCE *Short Answer* If a force of 200 newtons is required to accelerate an object at 25 meters per second squared on a horizontal frictionless surface, what is the mass of the object, in grams?

ANSWER: 8,000

(Solution: $F/a = m = 200/25 = 8 \text{ kg} = 8,000 \text{ g}$)

TOSS-UP

8) EARTH SCIENCE *Multiple Choice* Which of the following is the actual location where slippage of rock masses first occurs in an earthquake:

- W) seismic front
- X) focus
- Y) Richter point
- Z) foreshock

ANSWER: X) FOCUS

BONUS

8) EARTH SCIENCE *Short Answer* What is the name for the location on the Earth's surface directly above an earthquake focus?

ANSWER: EPICENTER

TOSS-UP

9) MATH *Short Answer* What is the percentage decrease when a stock price drops from \$55.00 per share to \$44.00 per share?

ANSWER: 20%

BONUS

9) MATH *Short Answer* A cell phone company charges 25 cents per minute for the first 10 minutes of usage and 10 cents per minute for usage greater than 10 minutes. If you talked for 1½ hours, what is your total airtime charge?

ANSWER: \$10.50

(Solution: $0.25 \times 10 = \$2.50$; $80 \text{ min} \times 0.1 = \8.00 ; $\$8 + \$2.5 = \$10.50$)

TOSS-UP

10) GENERAL SCIENCE *Multiple Choice* Which of the following is closest to the height of the typical standard 12-ounce soda can:

- W) 6 centimeters
- X) 12 centimeters
- Y) 18 centimeters
- Z) 24 centimeters

ANSWER: X) 12 CENTIMETERS

BONUS

10) GENERAL SCIENCE *Multiple Choice* Which of the following BEST describes the composition of the Proton Exchange Membrane in fuel cells used to power automobiles:

- W) polymer plastic
- X) metal foil
- Y) organic fiber
- Z) biofilm

ANSWER: W) POLYMER PLASTIC

TOSS-UP

11) LIFE SCIENCE *Multiple Choice* Which of the following is closest to the length of time it takes for a typical human cell to complete mitosis:

- W) 1 second
- X) 1 minute
- Y) 1 hour
- Z) 1 day

ANSWER: Z) 1 DAY

BONUS

11) LIFE SCIENCE *Short Answer* Order the following 4 stages of mitosis from the EARLIEST to that LATEST: metaphase; prophase; telophase; anaphase

ANSWER: PROPHASE; METAPHASE; ANAPHASE; TELOPHASE

TOSS-UP

12) PHYSICAL SCIENCE *Multiple Choice* Which of the following is an example of laboratory equipment that is specifically designed to mix fluids without spilling:

- W) pipette
- X) centrifuge
- Y) Erlenmeyer flask
- Z) graduated cylinder

ANSWER: Y) ERLENMEYER FLASK

BONUS

12) PHYSICAL SCIENCE *Multiple Choice* Which of the following elements is NOT a gas in its standard state:

- W) fluorine
- X) nitrogen
- Y) bromine
- Z) neon

ANSWER: Y) BROMINE

TOSS-UP

13) EARTH SCIENCE *Multiple Choice* Which of the following fossils is the oldest:

- W) fossil of the earliest flowering plant
- X) fossilized frog's egg
- Y) trilobite
- Z) mastodon

ANSWER: Y) TRILOBITE

BONUS

13) EARTH SCIENCE *Multiple Choice* Which of the following is a layer of the Earth that is primarily characterized as rock with the properties of being hot, weak and plastic:

- W) lithosphere
- X) asthenosphere
- Y) inner core
- Z) outer core

ANSWER: X) ASTHENOSPHERE

TOSS-UP

14) MATH *Short Answer* What is the degree measure of the vertex angle in an isosceles triangle if each base angle measures 48° ?

ANSWER: 84

BONUS

14) MATH *Short Answer* What is the surface area of a cube, in square feet, if one edge measures 5 feet?

ANSWER: 150

TOSS-UP

15) GENERAL SCIENCE *Multiple Choice* You wake up in the morning and your eyelids are stuck together with a thin or thick discharge caused by inflammation of the clear membrane that covers the white part of your eyes. Which of the following is MOST likely your problem:

- W) sinusitis
- X) cellulitis
- Y) osteomyelitis
- Z) conjunctivitis

ANSWER: Z) CONJUNCTIVITIS

BONUS

15) GENERAL SCIENCE *Multiple Choice* Which of the following is NOT true about nicotine:

- W) chewing or smokeless tobaccos are safe when used properly because nicotine cannot be absorbed through the mucous membrane
- X) nicotine and cyanide have been found in cigarettes
- Y) during pregnancy, nicotine concentrates in breast milk and fetal blood
- Z) nicotine is a plant alkaloid that is poisonous to most animals

ANSWER: W) CHEWING OR SMOKELESS TOBACCOS ARE SAFE WHEN USED PROPERLY BECAUSE NICOTINE CANNOT BE ABSORBED THROUGH THE MUCOUS MEMBRANE

TOSS-UP

16) LIFE SCIENCE *Short Answer* What are the scientific terms for the two general types of tissues that conduct fluids in higher plants?

ANSWER: XYLEM AND PHLOEM

BONUS

16) LIFE SCIENCE *Short Answer* What is the scientific name for the basic cell type in higher plants that is relatively unspecialized, has a thin cell wall, and carries out most of the metabolism of the plant?

ANSWER: PARENCHYMA

TOSS-UP

17) PHYSICAL SCIENCE *Short Answer* Of the 4 states of matter, which one is the most common in the universe?

ANSWER: PLASMA

BONUS

17) PHYSICAL SCIENCE *Multiple Choice* Which of the following is the scientific term for the energy needed to transform a given quantity of a substance from a liquid to a gas at standard pressure:

- W) heat of boiling
- X) heat of fusion
- Y) heat of transition
- Z) heat of vaporization

ANSWER: Z) HEAT OF VAPORIZATION

TOSS-UP

18) EARTH SCIENCE *Multiple Choice* Calcite belongs to which of the following mineral groups:

- W) oxide
- X) carbonate
- Y) sulfate
- Z) silicate

ANSWER: X) CARBONATE

BONUS

18) EARTH SCIENCE *Short Answer* During what phase of the Moon can a solar eclipse occur?

ANSWER: NEW MOON

TOSS-UP

19) MATH *Short Answer* If two sides of a parallelogram are 8 and 9 centimeters, respectively, find the perimeter, in centimeters:

ANSWER: 34

BONUS

19) MATH *Short Answer* Rounded to the nearest meter, if side A of a right triangle measures 6 meters and side B measures 9 meters, what is the length of the hypotenuse?

ANSWER: 11

(Solution: $6^2 + 9^2 = c^2$; $c = 11$)

TOSS-UP

20) GENERAL SCIENCE *Multiple Choice* Earth's seasons are primarily caused by:

- W) Earth's distance from the Sun
- X) the tilt of Earth's axis with respect to the Sun
- Y) Earth's elliptical orbit around the Sun
- Z) Earth's rotational period

ANSWER: X) THE TILT OF EARTH'S AXIS WITH RESPECT TO THE SUN

BONUS

20) GENERAL SCIENCE *Short Answer* What is the name for the muscle that contracts when you inhale and causes your chest cavity to expand?

ANSWER: DIAPHRAGM

TOSS-UP

21) LIFE SCIENCE *Short Answer* What is the common name for the vector of Eastern Equine Encephalitis and malaria?

ANSWER: MOSQUITO

BONUS

21) LIFE SCIENCE *Multiple Choice* What biome is dominant in sub-Saharan Africa and characterized by the dominant plants being fire resistant:

- W) chaparral
- X) tundra
- Y) savanna
- Z) temperate

ANSWER: Y) SAVANNA

TOSS-UP

22) PHYSICAL SCIENCE *Multiple Choice* Which of the following is the BEST example of a suspension:

- W) water with 10% ethanol added to it
- X) olive oil in water
- Y) table sugar completely dissolved in water
- Z) orange juice with pulp

ANSWER: Z) ORANGE JUICE WITH PULP

BONUS

22) PHYSICAL SCIENCE *Multiple Choice* According to thermodynamics, whenever energy is converted from one form to another then:

- W) the net useful energy remains the same
- X) the net useful energy must decrease
- Y) the total energy of the system increases
- Z) the total energy of the system decreases

ANSWER: X) THE NET USEFUL ENERGY MUST DECREASE

TOSS-UP

23) EARTH SCIENCE *Multiple Choice* A caldera is:

- W) a huge depression formed after a magma chamber collapses
- X) a long tube where magma pours out onto the surface
- Y) a lateral vent that spews only gases
- Z) another name for a fumarole

ANSWER: W) A HUGE DEPRESSION FORMED AFTER A MAGMA CHAMBER COLLAPSES

BONUS

23) EARTH SCIENCE *Short Answer* What most commonly happens to the speed of ocean and lake waves as they approach the shallow waters of a shore?

ANSWER: SLOW DOWN

TOSS-UP

24) MATH *Multiple Choice* Which of the following is a quadrilateral with only one pair of parallel lines:

- W) trapezoid
- X) rhombus
- Y) rectangle
- Z) hexagon

ANSWER: W) TRAPEZOID

BONUS

24) MATH *Short Answer* What are the median, mean and mode, respectively, of the following set of 5 numbers, respectively: 35, 25, 10, 25, 45

ANSWER: MEDIAN = 25; MEAN = 28; MODE = 25

TOSS-UP

25) GENERAL SCIENCE *Multiple Choice* Which of the following elements acts as a catalyst for destroying ozone in the upper atmosphere:

- W) sulfur
- X) chlorine
- Y) nitrogen
- Z) helium

ANSWER: X) CHLORINE

BONUS

25) GENERAL SCIENCE *Short Answer* Today, most semiconductors and transistors are made mostly with what element?

ANSWER: SILICON