ROUND 2

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TOSS-UP

Matitude Mar At 12 198 1) CHEMISTRY Short Answer What is the scientific term for the ratio between the density of a ANSWER: SPECIFIC GRAVITY (ACCEPT: RELATIVE DENSITY) Mythun 病 淋 資際

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- 1) CHEMISTRY Multiple Choice Which of the following pure substances has the highest melting Implitute 教育 养 婆 序 point at 1 atmosphere of pressure: Minimu 横横 株 · 寶 /彩
- W) magnesium oxide
 X) diamond

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- Y) sodium chloride
- Z) cesium chloride

ANSWER: X) DIAMOND

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(Solution: MgO = 2800°C; diamond = 3550°C; NaCl = 801°C; Cs = 645°C)

TOSS-UP

2) BIOLOGY *Short Answer* What is the MOST common anatomical synonym for ventral, when locating a part of the human body in relation to another part?

ANSWER: ANTERIOR

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2) BIOLOGY Short Answer What are the names for the pyrimidine bases found in DNA?

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ANSWER: CYTOSINE; THYMINE

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3) PHYSICS *Short Answer* According to one of the most common color triangles, if blue and green are primary colors, what is the third primary color?

ANSWER: RED

Y.

Y.

Y.

Y.

Y.

Y.

1

Y.

Y.

BONUS

3) PHYSICS *Short Answer* What is the most common name for the pattern of light and dark lines produced when coherent light is passed through two horizontal slits in a thin opaque sheet, causing superposition of waves projected on a wall?

ANSWER: INTERFERENCE PATTERN (ACCEPT: INTERFERENCE)

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TOSS-UP

4) MATH *Short Answer* What is the smaller of two integers whose sum is 19 and whose product is 48?

ANSWER: 3

(Solution: 16 + 3 = 19; $16 \times 3 = 48$)

BONUS

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- 4) MATH *Multiple Choice* Which of the following numbers is evenly divisible by both 11 and 3:
- W) 7791
- X) 7553
- Y) 5181
- Z) 8769

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ANSWER: Y) 5181

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- 5) EARTH SCIENCE Multiple Choice Which of the following is best classified as a plutonic intrusive rock:
- W) obsidian
- X) granite
- Z) pumice

ANSWER: X) GRANITE

BONUS

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- 5) EARTH SCIENCE Multiple Choice The principle constituent of most granites is:
 - W) feldspar
 - X) muscovite
 - Y) calcite

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Y.

ANSWER: W) FELDSPAR

TOSS-UP

- 6) GENERAL SCIENCE *Multiple Choice* The related quantities charted on a line graph are most often called:
 - W) results
 - X) lines
 - Y) sets
 - Z) variables

ANSWER: Z) VARIABLES

BONUS

6) GENERAL SCIENCE Short Answer How many grams of sodium chloride is in 2,000 milliliters of 0.9% NaCl solution?

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ANSWER: 18

(Solution: $0.9g/100 \text{ mL} \times 2000 \text{ mL} = 18.0 \text{ g}$) 剧神神教教学等學 Misitale An At 'S

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7) ASTRONOMY Short Answer What basic force of the universe is most responsible for holding the planets of our solar system in their orbits?

ANSWER: GRAVITY

Y.

Y.

Y.

Y.

1

1

Y.

Y.

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BONUS

7) ASTRONOMY Short Answer What are the proper names of the 5 celestial bodies called wanderers by Greek astronomers because they had unusual paths in the sky throughout the year?

ANSWER: MERCURY; VENUS; MARS; JUPITER; SATURN (in any order)

TOSS-UP

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- 8) CHEMISTRY Multiple Choice Group 1 cations and group 7 anions combine to form:
- X) alkali halides
 Y) alkala

 - Z) organometallic compounds

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ANSWER: X) ALKALI HALIDES

BONUS

8) CHEMISTRY Short Answer Give the chemical name for the compound formed when pure iron and pure sulfur are mixed together and heated:

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Maritha Mark 13 18 ANSWER: IRON SULFIDE (ACCEPT: IRON(II) SULFIDE or FERROUS SULFIDE)

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9) BIOLOGY Short Answer From what chamber of the human heart does blood carried by the left pulmonary artery leave?

ANSWER: RIGHT VENTRICLE

BONUS

9) BIOLOGY Short Answer What human gland or organ produces tri-iodothyronine (read as: TRY- I-OH-doh-THY-row-neen)?

ANSWER: THYROID

Y.

Y.

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Y.

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Y.

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TOSS-UP

10) PHYSICS Short Answer A white-colored object illuminated by a green light will appear as what color to the human eye? Milliante state state is the Militally 教教教学等 PS

ANSWER: GREEN

BONUS

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- 10) PHYSICS Multiple Choice A child learns that mixing approximately equal amounts of the paint colors orange and green produces brown. This is an example of:
- W) additive color mixing
- X) summative color generation

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- Y) subtractive color synthesis
- Z) neutral coloration

ANSWER: Y) SUBTRACTIVE COLOR SYNTHESIS

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- 11) MATH *Multiple Choice* One-fifth of 0.04% is equal to:
- W) 8×10^{-2}

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Y.

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Ph.

Y.

- X) 8×10^{-3}
- Y) 8×10^{-4}
- Z) 8×10^{-5}

ANSWER: Z) 8×10^{-5}

(Solution: (0.2)(0.0004) = 0.00008)

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12) EARTH SCIENCE Multiple Choice When spreading centers reach above the ocean's surface, they typically form which of the following types of volcanoes:

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- X) composite
 Y) stratovol
 - Z) cinder cone

ANSWER: W) SHIELD

BONUS

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- Matinte Mark 13 1980 12) EARTH SCIENCE *Multiple Choice* Mount Vesuvius in Italy is a typical:
 - W) mud volcano
 - X) caldera

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- Y) cinder cone
- Z) composite volcano

ANSWER: Z) COMPOSITE VOLCANO

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Matinta Mar ph ' 18 PR 阿斯拉州 mulinte the the text of the 13) GENERAL SCIENCE Short Answer The fertilizer potash provides plants with what element ANSWER: POTASSIUM (ACCEPT: K) necessary for healthy growth and which is also the seventh most abundant element on Earth? Matitude ## # 13 PR Melitule Me H & P.

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13) GENERAL SCIENCE Short Answer From what protein is gelatin, which is used as a food Maithe Mark is 180 additive, most commonly derived? Mylithin Mar H ' & PR

ANSWER: COLLAGEN

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Y.

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TOSS-UP

likely coined by Fred Hoyle, for the theory that the universe originated at a finite time many eons ago from an extremely compressed hot state?

ANSWER: BIG BANG

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14) ASTRONOMY Short Answer In what constellation is the star Polaris found?

ANSWER: LIRSA MINIOR (2)

ANSWER: URSA MINOR (DO NOT ACCEPT: LITTLE DIPPER)

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15) CHEMISTRY Short Answer What is the pH of a solution with a pOH of 6.8 at 25°C?

ANSWER: 7.2

Y.

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Y.

Y.

1

1

1

Y.

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BONUS

- 15) CHEMISTRY Multiple Choice Which of the following substances is water soluble:
 - W) ethanol
 - X) dichloro-methane
 - Y) chloroform
 - Z) benzene

ANSWER: W) ETHANOL

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TOSS-UP

16) BIOLOGY Short Answer Yersinia, Drosophila and Homo are all what taxonomical category?

ANSWER: GENUS (ACCEPT: GENERA)

BONUS

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16) BIOLOGY Short Answer From what monosaccharide is cellulose primarily composed?

ANSWER: CLUCOSE 11.

ANSWER: GLUCOSE (ACCEPT: B-D-GLUCOPYRANOSYL or D-GLUCOSE)

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17) PHYSICS Short Answer Although in many respects difficult to define, what term is MOST often described as a push or a pull that can cause an object to accelerate?

ANSWER: FORCE

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Y.

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Y.

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Y.

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BONUS 1/2

17) PHYSICS Short Answer What is the MOST common term for the inwardly directed force exerted on an object to keep the object moving in a circle?

ANSWER: CENTRIPETAL (ACCEPT: CENTRIPETAL FORCE)

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TOSS-UP

18) MATH Short Answer Giving your answer in centimeters, what is the length of a side of a square whose diagonal measures $12\sqrt{2}$ centimeters? Militally Market 18 180 Myinte 新社·该风

ANSWER: 12

BONUS

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18) MATH Short Answer Multiply the following 4 numbers and give your answer in scientific notation: $30,000 \times 3,000 \times 30 \times 0.1$

ANSWER: 2.7×10^8

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19) EARTH SCIENCE Short Answer What is the oldest Eon on the Geological Time Scale within which the first organisms appeared between 550 million and 3.4 billion years ago?

ANSWER: PRECAMBRIAN

Y.

Y.

Y.

Y.

1

1

1

Y.

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BONUS 1/3

19) EARTH SCIENCE Short Answer Homo sapiens evolved during which geological era of the Geological Time Scale?

ANSWER: CENOZOIC

TOSS-UP

- 20) GENERAL SCIENCE Multiple Choice Anthropogenic means:

- X) created many years ago
 Y) carried in print
 - Y) carried in primate genes
 Z) harmful to all

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ANSWER: W) GENERATED BY HUMANS

BONUS

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20) GENERAL SCIENCE Short Answer The primary anthropogenic cause of acid rain is the emission of what 2 gases?

ANSWER: SULFUR OXIDES; NITROGEN OXIDES (in any order)

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(ACCEPT: SULFUR DIOXIDE or SO₂ AND NITROGEN DIOXIDE or NO₂)

(DO NOT ACCEPT: SULFURIC ACID or NITRIC ACID)

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21) ASTRONOMY Short Answer What is the primary elemental product of stellar hydrogen fusion?

ANSWER: HELIUM

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Y.

Y.

BONUS

Mylitute state 21) ASTRONOMY Short Answer In the equatorial celestial coordinate system, what terms are synonymous with longitude and latitude, respectively?

ANSWER: LONGITUDE = RIGHT ASCENSION; LATITUDE = DECLINATION

TOSS-UP

22) CHEMISTRY Short Answer What is the atomic number for the ground state element with the following electron configuration: $1s^22s^22p^5$ (read as: 1, s, 2; 2, s, 2; 2, p, 5) Marithle Mark & PR

ANSWER: 9

BONUS

22) CHEMISTRY Short Answer How many grams of KCl, with a molar mass of 75, are needed to Millim Mikigm De state of the st make 1 liter of a 3 molar solution?

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ANSWER: 225

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(Solution: $1 L \times (3.0 \text{ mol/L})(75 \text{ g/mol}) = 225 \text{ g}$)

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23) MATH Short Answer Giving your answer in standard form, what is the last term in the binomial expansion of the following: $(x + y)^6$

ANSWER: y^6

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Y.

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Y.

BONUS 1/3

Mylitute Mark 18 180 23) MATH Short Answer Simplify the following expression by combining like terms: 12.03A - 4.03B - 0.03(A - 40)

ANSWER: 12A - 4.03B + 1.2

TOSS-UP

24) PHYSICS Short Answer What specific law of motion most directly implies that every action has an equal and opposite reaction? Mininte 教教教·後序

ANSWER: NEWTON'S THIRD LAW (ACCEPT: THIRD LAW)

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BONUS

24) PHYSICS Multiple Choice Jay walks to his car and drives to the store. The trip takes 20 trip took. Which of the following BEST describes what Jay has computed: minutes. Jay figures how far he traveled on foot and by car and divides the distance by how long the

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- W) total velocity
- X) average acceleration
- Y) average speed

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Z) instantaneous velocity

ANSWER: Y) AVERAGE SPEED

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25) BIOLOGY Short Answer The sinoatrial (read as: sine-oh-AYE-tree-al) node is located in what human organ?

ANSWER: HEART

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Mylithe ## # 13 PR 25) BIOLOGY Short Answer In what chamber of the human heart is the sinoatrial (read as: sineoh-AYE-tree-al) node located?

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motivite # 14 18 ANSWER: RIGHT ATRIUM Maritale ** ** Milital Mar 24 '8'

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