ROUND 8

Military of the state of the st

Militate At 18 18

stitute 素 养婆 PS

TOSS-UP

- Matinta Mar ph ' 18 PR Delitate the 14 18 18 1) CHEMISTRY Multiple Choice The reaction $Fe_3O_4 + 4H_2 \rightarrow 3Fe + 4H_2O$, is an example of what class of chemical reaction: Milling 素素素 Inhihih 教養養養 Millinin 教育 养 · 溪 序
 - W) decomposition
- X) single replacement
 Y) combined

Y.

1%

Y.

Y.

1

Ph.

W.

Z) combination

ANSWER: X) SINGLE REPLACEMENT

BONUS

1) CHEMISTRY Short Answer Find the mass percent composition, rounded to the nearest whole number, for each atom in KClO₃. Assume the atomic masses of potassium = 39, chlorine = 35, and oxygen = 16

ANSWER: K = 32%; C1 = 29%; O = 39%

(Solution: $K = 39g/122g \times 100\% = 32\%$; $Cl = 35/122 \times 100\% = 29\%$; $O = 48/122 \times 100\% = 39\%$)

- 2) BIOLOGY Multiple Choice Which of the following is the highest level of structural organization in myoglobin:
- W) primary
- X) secondary
- Y) tertiary

女子资外

Z) quaternary

ANSWER: Y) TERTIARY

Decitate the 14 18 182

Militale State 18 180

2) BIOLOGY Short Answer Name all of the following 4 choices that are characteristic of E. coli: gram negative: an enteric arguments: E. coli: gram negative; an enteric organism; non-motile; bacillus

ANSWER: GRAM NEGATIVE; AN ENTERIC ORGANISM; BACILLUS

(ACCEPT: ALL BUT NON-MOTILE) Militate ## 13

Drithy the 14 18 18

Milital Mark 18 18

- 3) PHYSICS Multiple Choice Which of the following colors of light has the greatest angle of refraction in normal glass:
- W) yellow
- X) green

1

Y/L

1

1

1

Ph.

1

- Y) orange
- Z) blue

ANSWER: Z) BLUE

BONUS

- 3) PHYSICS *Multiple Choice* If a beam of white light passes through a prism, which of the following colors color will emerge on the other sides of the standard of the standa following colors color will emerge on the other side at the lowest angle with respect to the incident beam:
 - W) orange
 - X) indigo
- Y) green

ANSWER: W) ORANGE

TOSS-UP

- Mylitate start 4) MATH Multiple Choice Which of the following is NOT true:
 - W) all central angles in a regular polygon are equal
 - X) irregular polygons are not considered to have centers and have no central angles Y) the circumcircle of a regular polygon is the circle that passes through at least one vertex

 Z) all regular polygons are convey

 - Z) all regular polygons are convex

ANSWER: Y) THE CIRCUMCIRCLE OF A REGULAR POLYGON IS THE CIRCLE THAT PASSES THROUGH AT LEAST ONE VERTEX

BONUS 1/2

4) MATH *Short Answer* Find the sum of all interior angles, in degrees, in a regular polygon having 100 sides:

ANSWER: 17,640

(Solution: $(100 - 2)(180) = 17,640^{\circ}$)

Mulitate ## # 18 180

Maritule Mark 18 180

slithle to the little of the l

Maritule Mark 18 182

Marithle May 14 3

Maritule Mark 18 180

Militate At 18 18

gitute 新米·達然

- 5) EARTH SCIENCE Multiple Choice Because of Earth's rotation and shape, ocean currents are intensified along which of the following borders of all oceans:
- W) northern
- X) southern
- Y) eastern

1

Y/L

1

1

1

1

Ph.

z) eastern Z) western

ANSWER: Z) WESTERN

BONUS

Militin Art of 180

Marithus Market 18 180

Mainth Mark 18 18

- 5) EARTH SCIENCE *Multiple Choice* Which of the following is NOT generally characteristic of a passive continental margin:
 - W) relatively wide continental shelf
 - X) oceanic trench
- Z) continental rise Y) terrigenous sediment

ANSWER: X) OCEANIC TRENCH

- 6) GENERAL SCIENCE *Multiple Choice* The sea nettle is the Bering Sea's most common:
- W) jellyfish
- X) crab
- Y) sea urchin
- Z) walleye pollock

ANSWER: W) JELLYFISH

BONUS

6) GENERAL SCIENCE Multiple Choice 1 cubic foot per second equals approximately how many gallons per minutes:

Millite the 14 18 18

gitute ## # '\$ PS

- W) 256
- X) 449
- Y) 646
- Z) 724

1. 4. 4.

ANSWER: X) 449

gitute ## # '\$ P&

7) ASTRONOMY Short Answer Which of the terrestrial planets has the lowest albedo?

ANSWER: MERCURY

Y.

1

W.

1

Y.

Ph.

1

Ph.

Y.

BONUS

7) ASTRONOMY *Short Answer* Most of the hydrogen that makes up the planet Jupiter is in what phase?

ANSWER: LIQUID

TOSS-UP

Militing ## # 18

Millinin All At 18 180

Moritally Market 18 180

Myilith How At 13 192

stitute 素 养婆 PS

- 8) CHEMISTRY Multiple Choice Which of the following is the theoretical end of a titration:
- W) end point
- X) indicator point
- Y) equivalence point
 Z) standarding. Z) standardization point

ANSWER: Y) EQUIVALENCE POINT

(Solution: end point is the observed end of a titration)

Militale State 18 182

Myithin Market 18 18

BONUS

8) CHEMISTRY Short Answer In a strong acid-base titration, what is the pH of the solution when the equivalence point is reached? Majituto ** ** ** Mulitate And At 13 18 Militate ## # 18 18

Militale State 13 PK

Molitule At At is PR

ANSWER: 7

Ministate And At 18 182

Millinto 新春·養 然

Marithus Market & PR

Myithin Man At 13 18

Asitute the by Service of the servic

Military Way of Car

Maritanto 新春 株 淺 序

Molitule Mark if the

加加州縣

Mythine Mark 18 192 9) BIOLOGY Short Answer What specific class of antibodies is most commonly responsible for degranulation of basophils or mast cells?

ANSWER: IgE (ACCEPT: IMMUNOLGLOBULIN E)

BONUS 1/3

- 9) BIOLOGY Multiple Choice Which of the following is a group of about 20 proteins that aid in the attraction and phagocytosis of microorganisms by macrophages:
- W) alpha interferons
- X) complement system

Y.

Y.

Y.

Y.

Y.

1

1

Ph.

1

Mylitute At A Se Pic

Y) TNF Z) hemopoietins

ANSWER: X) COMPLEMENT SYSTEM

TOSS-UP

Millitule 教育 养 淺 序

10) PHYSICS Short Answer What property of a wave is generally said to increase during constructive interference?

ANSWER: AMPLITUDE

Military Market 18 18

Militing 素素 養 一家

BONUS

10) PHYSICS Short Answer What is the most common name for the Law or principal dictating that the amount of a substance that is released or deposited from an electrode is directly proportional to the amount of electric current passing through the circuit?

Militale the the light of the

Maritute 教育 林·溪 序》

ANSWER: FARADAY'S FIRST LAW OF ELECTROLYSIS

Millan Mark is 1982

Militate ## # 18 18

(ACCEPT: FARADAY'S FIRST LAW or FARADAY'S LAW OF ELECTROLYSIS)

Majituto ** ** **

Maritale Mark 18 182

11) MATH *Short Answer* Find 2 mean proportionals between the numbers 3 and 24:

ANSWER: 6 AND 12

ANSWER: 6 AND 12

(Solution: $3r^3 = 24$, r = 2)

BONUS

11) MATH Short Answer Find the numerical value of the geometric mean of the following 4 values: 2^1 ; 2^3 ; 2^8 ; 2^8

(Solution: 1 + 3 + 8 + 8 = 20/4 = 5; $2^5 = 32$)

TOSS-UP

12) EARTH SCIENCE *Multiple Choice* Many of the driest locales on Earth are situated between which of the following latitudes:

W) 0° to 15°

Y.

Y.

1

1

Y.

- X) 15° to 30°

Z) 45° to 45° z) 45° to 60° ANSWER: X) 15° to 30°

BONUS

- 12) EARTH SCIENCE Multiple Choice Which of the following is NOT true of breccia rock:
 - W) it is sedimentary
 - X) its color is variable
 - Y) its texture consists of rounded pebbles, cobbles and boulders

Stitute 新春·養學

Z) fragments may be any type of igneous, metamorphic, or sedimentary rocks

ANSWER: Y) ITS TEXTURE CONSISTS OF ROUNDED PEBBLES, COBBLES AND **BOULDERS**

Stitute Man # 15 19%

(Solution: constituent clasts are angular) Millinin Mar # 18 180

即即相接來來。淺極

加加州海洋洋

Mikituto 横林塔

Milliante 新春養療

gitute 新米·達然

Military of the state of the st

Marithus Market 18 180

Milling 新菜 · 養 · 豫

Military of the state of the st

Milling 新春 · 養 序配

Milling 新春 · 養 序配

制油化糖素

v I	**************************************	The Market of the Control of the Con	TOSS-UP	W BON	W B W
ork Otorica	13) GENERAL SCIENCE	Multiple Choice	In the northern	hemisphere, which o	of the following
THIS THE	degrees latitude would exp	erience a length of	day of 6 month	S. Milling	Min

W) 0

Mylithe # 3

Y.

Y.

Y.

1%

Y.

1

1

Ph.

Y.

X) 30

z) 60 Z) 90 Y) 60

ANSWER: Z) 90

BONUS

13) GENERAL SCIENCE *Multiple Choice* Which of the following is a substance that is generally considered friable:

W) concrete

X) topaz

quartz Z) perlite

ANSWER: Z) PERLITE

(Solution: it is easily reduced to smaller pieces with little effort)

Militing 教 林·接 然

TOSS-UP

Maritule ## # 18 180 14) ASTRONOMY Short Answer From what specific celestial body do meteor showers originate?

ANSWER: COMET(S)

BONUS

14) ASTRONOMY Multiple Choice Of which of the following is the Hubble Law most directly a consequence: Mikituto Mark 18 18 Maritute Star At '8 18 Myithte Mark 13 18

Myjinto Ar Ar ig PR

- W) Doppler shift
- X) Kirchoff's second law
- Y) Kepler's second law
- Z) Drake's equation

Marithus Mark 18 180 ANSWER: W) DOPPLER SHIFT Military Mar 14 13

水水水水

Millite the the is the

- 15) CHEMISTRY Multiple Choice A sample of gas is heated from 300K to 500K. If the container is sealed and of fixed volume, which of the following will remain constant:
- W) the average kinetic energy of the gas molecules
- X) the average speed of the gas molecules
- Z) the pressure of the gas

ANSWER: Y) THE DENSITY OF THE GAS

BONUS

- 15) CHEMISTRY *Multiple Choice* Which of the following does NOT have the electron configuration of argon: configuration of argon:
 - W) O^{2-}
 - X) Cl

1

Y.

1

1

1

Ph.

Maritante Art 18 18

- Y) S^{2-}

2) S² Z) K⁺ ANSWER: W) O²⁻

(Solution: O²-has configuration of neon)

Milling the 13 Pic

TOSS-UP

16) BIOLOGY Short Answer In angiosperm seed development, what fuses with the second sperm nucleus to form the endosperm?

ANSWER: 2 POLAR NUCLEI (ACCEPT: 2 OR BOTH POLAR NUCLEI or POLAR NUCLEI) (DO NOT ACCEPT: POLAR NUCLEUS)

BONUS

16) BIOLOGY Short Answer In what specific part of a eukaryotic cell will pyruvate be converted into acetyl Co-enzyme A?

Stitute ## # 13 PR

ANSWER: MITOCHONDRION (ACCEPT: MITOCHONDRIA)

別加州縣

gitute 素 并 · 沒 「%

Militate And At 18 198

Militate Mark 18 180

Maithin Mark 18 182

gitute 新米·達然

Militate At 18 18

- 17) PHYSICS Multiple Choice Which of the following are the most important calibration references that Celsius used to devise his temperature scale:
- W) melting point and boiling point of water
- X) ice-point and freeze-thaw point of water
- Z) boiling point and steam point of water

ANSWER: W) MELTING POINT AND BOILING POINT OF WATER

BONUS

- 17) PHYSICS Multiple Choice Which of the following is the MOST reliable measure of the remaining percentage of stored energy in a lead acid better.
 - W) pH of the electrolyte

Y.

1

1

Ph.

Maritante Art 18 18

本学家外

- X) voltage remaining in the battery as measured on a voltmeter
- Z) specific gravity of the electrolyte

ANSWER: Z) SPECIFIC GRAVITY OF THE ELECTROLYTE

Millite Mark is 180

18) MATH *Short Answer* There are 10 people on a bus who, when ranked from youngest to oldest, all differ from those on the bus closest in age to them by the same number of years. If the youngest is 6 and the oldest is 51, what is the common difference in their age?

ANSWER: 5

(Solution: 6-11-16-21-26-31-36-41-46-51)

BONUS

Printy to the training the state of the stat

18) MATH Short Answer Solve the following equation for all real values of x: $(x + 3)^2 = 16$

ANSWER: 1 AND -7

Drithte Make 18 182

別加州海海林湾

Maithin Mark 18 18

Majituto Mark iš 1982

Militate And At 18 18

gitute 新米·達然

- 19) EARTH SCIENCE Multiple Choice When geologists find pillow basalts in ancient rock sequences, which of the following BEST explains their presence:
- W) the area was once underwater
- X) volcanic bombs and lapilli landed on snow or ice and quickly cooled
- Y) they hardened in mid-air, sometimes forming a tear-drop shape
- Z) nearby volcanoes erupted enormous quantities of ash

ANSWER: W) THE AREA WAS ONCE UNDERWATER

BONUS

19) EARTH SCIENCE Short Answer What is the general name for the myriad of suspended particles or aerosols in the Earth's atmosphere that allow roin dead. particles or aerosols in the Earth's atmosphere that allow rain droplets to undergo coalescence?

ANSWER: CONDENSATION NUCLEI

TOSS-UP

20) GENERAL SCIENCE Multiple Choice Which of the following is closest to the meaning of the suffix 'tropic' (read as: troh-PIK):

Maritule Market 18 182

W) hot

1

1

1

1

1

- X) wet
- Y) changing
- Z) under

ANSWER: Y) CHANGING

BONUS 18

- Militate At the 'S 20) GENERAL SCIENCE Multiple Choice In which of the following locations has water at its highest temperature ever been recorded in nature:
 - W) within gullies on Venus
 - X) in very deep ocean hydrothermal vents along the mid-Atlantic ridge
 - Y) at the bottom of Yellowstone Lake in Yellowstone National Park

Milling 新菜菜家

Z) within volcanic vents high atop Hawaii's Kilauea volcano

ANSWER: X) IN VERY DEEP OCEAN HYDROTHERMAL VENTS ALONG THE MID-Millinin 教養養際 ATLANTIC RIDGE Stitute the the is the Millite the the light Millite the the is the Stitute And At 's PR William Mar 44.13

Marith the # 13 PR

Militale Market 18 18

stitute the the light of the state of the st

Military Way 18 3

Matinta And Art 'S

21) ASTRONOMY Short Answer What is the most accurate term astronomers use for the time it takes for a planet to orbit the Sun relative to the stars?

ANSWER: SIDEREAL PERIOD

BONUS 1/3

21) ASTRONOMY Short Answer What terrestrial planet has the longest sidereal period?

ANSWER: MARS

Y.

1

W.

1%

Y.

1

1

Ph.

Y.

Millinin 教教教·蒙然

Millinin 教教教·蒙然

1. 安米·洛州

TOSS-UP

22) CHEMISTRY Short Answer In the electrolysis of a copper chloride solution, what forms at the cathode and anode, respectively?

CHLORINE GAS or Cl₂) ANSWER: CATHODE = COPPER (ACCEPT: Cu); ANODE = CHLORINE (ACCEPT:

BONUS

Milling 新春·養 然

Mobilitude Aft Aft 18 18

Implitute 教教 社· 资序

22) CHEMISTRY Short Answer According to standard chemical nomenclature, what is the TIMINIMA MARKET SE PRO Maritude Mar At 13 1980 formula for ammonium sulfate?

Myitalle Market 18 18

Milling # # '8 PR

ANSWER: (NH₄)₂SO₄

Inhihite 新春·養 然

Inthinte 新春·養 然

Inhihite 新春·養 際

W B W. B. W.

Militally Art 18 18

Mistime Mark is 18

Milling 教教教學

Milling 素 基 · 该 序

Matinta Ant Ax 3

Matinta And Art 'S

mytinte star star ig file

Militale Market 18 18

Militale Market 18 18

23) BIOLOGY Short Answer How many human ova are produced by a full round of meiosis from a single primary oocyte?

ANSWER: 1

Matinta Mar & Co

Mylithe # 3

Y.

Y.

Y.

1

1

1

1

1

Y.

Mysitate Art 18 18

Inhihite 新春·養 然

1. 4. 4.

(Solution: mammals produce 1 ovum and 3 polar bodies per primary oocyte)

BONUS

23) BIOLOGY Short Answer Name all of the following 4 animals for which L-ascorbate is an essential nutrient: humans; dogs; cats; horses White the state of the state of

ANSWER: HUMANS

TOSS-UP

that accepts the charges acquires the same number of charges that the other object has lost. What law most directly governs this equal exchange? 24) PHYSICS Short Answer In triboelectric charging, when one object loses electrons, the object

ANSWER: CONSERVATION OF CHARGE

24) PHYSICS Short Answer Consider an organ pipe open at both ends. For a standing wave in the pipe, what is the wavelength of the fundamental tone, in terms of the pipe's length?

Ministration of the party of th

Millinte 新春春·養學

ANSWER: 2 (ACCEPT: 2 PIPE LENGTHS) Millinte 新春 基 第 Military Market & PR Molitule # # 18 18 TENTITULE NAT NA 13 PK

Militate A H W

Milling 素 并 · 该 序

Inhihite 新春·養 際

1. 数米洛尔

Militally Am At 13 18

Militale Market 18 18

Militale Market 18 182

Militale Militale State Co

Matinta Ant 18 3

Milling 素素 養 一家

Implitute 素素 接 %

Inhihih 教 养 · 该 然

Military of the state of the st

Implitute 素素 ·養 序》

Inditute 素素 ·養 序》

Mylithe star of

Mylithe # ** **

Implitute 素素 ·養 感

Millinin 教教教·蒙然

Millinin 教教教·蒙然

Matitude # 14 18

Marithle Mar of 18 18 25) MATH Short Answer Giving your answer in standard form, give the equation of the circle with center at (0, 0) and diameter of 6:

ANSWER:
$$x^2 + y^2 = 9$$

Milital All Services

1

1

Y.

Y.

Y.

1

1

Y.

1

BONUS

Marithle Mar Hr ' & PR 25) MATH Short Answer What is the degree measure of the angle formed by 2 secants intersecting outside a circle if the measures of the intercepted arcs are 80° and 34°?

Marith Mar No. 18 P. C.

Milital Mar No. 18 18.

Milital Mar No. 18 18.

Milling 新春·養 然

Milling 素 基 · 養 / 第

Mytitute ## # 18 PR

Mytitute ## # 18 PR

Marithus Mar # 18 180

Mytithe Mark 18 18

1. 4. 4.

(Solution:
$$\frac{1}{2}(80^{\circ} - 34^{\circ}) = 23^{\circ}$$
)

Milital Market & PR

Implitute 教教教·婆然

Implitute 教教教·婆然

Millinin 教教教·蒙然

Militin 教教教·蒙豫

1. 4. 13 %



10 张 张