

EARTH AND SPACE

1. EARTH AND SPACE

Writer: Jan Wojcik

Toss Up: Multiple Choice

sex

W) .

X) .

Y) .

Z) .

Toss Up Answer: Z

Bonus: Multiple Choice

penis

W) .

X) .

Y) .

Z) .

Bonus Answer: W

2. EARTH AND SPACE

Writer: Ashneel Das

Toss Up: Short Answer

What is the term for the point at which Earth is closest to the moon?

Bonus Answer: Perigee

Bonus: Short Answer

If planet A is twice as close to the sun as planet B, how many times brighter does the sun appear on planet A than planet B?

Bonus Answer: 4

3. EARTH AND SPACE

Writer: Zoe Orlin

Toss Up: Short Answer

what is a front?

Bonus Answer: boundary between two air masses

Bonus: Short Answer

How does a cold front form?

Bonus Answer: w. drop in temperature

x. cold air moves in and replaces warm air

y.warm air moves in and replaces cold air

z. cold and warm air mix :)

4. EARTH AND SPACE

Writer: Janine Goh

Toss Up: Short Answer

What is the closest star to the solar system, 4.25 light years away from the sun?

Bonus Answer: Proxima Centauri

Bonus: Short Answer

On approximately which two days of the Gregorian calendar do full moons appear?

Bonus Answer: 15th and 16th of each month

5. EARTH AND SPACE

Writer: Janine Goh

Toss Up: Short Answer

What is the speed of light in km/hr, in scientific notation, to 2 decimal places?

Bonus Answer: 1.08×10^9

Bonus: Multiple Choice

How many sub levels does Cesium have?

W) 9

X) 10

Y) 11

Z) 12

Bonus Answer: Z

6. EARTH AND SPACE

Writer: Janine Goh

Toss Up: Short Answer

In which hemisphere are constellations named after scientific instruments?

Bonus Answer: Southern

Bonus: Short Answer

What is the latin name for the constellation that the big dipper is a part of?

Bonus Answer: Ursa Major

7. EARTH AND SPACE

Writer: Janine Goh

Toss Up: Short Answer

What is the general name for blood disorders?

Bonus Answer: Thalassemia

Bonus: Multiple Choice

Which of the following is a housekeeping gene?

W) Ubiquitin

X) Haemoglobin

Y) Ovalbumin

Z) Pyronisin

Bonus Answer: W

8. EARTH AND SPACE

Writer: Andrew Chen

Toss Up: Short Answer

What is the name of the tectonic plate that is currently undergoing subduction under the South American plate, responsible for the Andes mountains?

Bonus Answer: Nazca

Bonus: Multiple Choice

Which of the following has the highest number of cleavage planes?

- W) Muscovite
- X) Halite
- Y) Fluorite
- Z) Mica

Bonus Answer: Y

9. EARTH AND SPACE

Writer: Ashneel Das

Toss Up: Short Answer

What is the term for the reflection of radiation off Earth's surface?

Bonus Answer: Albedo

Bonus: Short Answer

Which planet is most similar to Earth in size?

Bonus Answer: Venus

10. EARTH AND SPACE

Writer: Andrew Chen (Senior)

Toss Up: Multiple Choice

Which type of weather front is represented by alternating purple spikes and semicircles?

- W) Cold front
- X) Warm front
- Y) Occluded front
- Z) Stationary front

Toss Up Answer: Y

Bonus: Short Answer

What weather front is formed as a cold air mass pushes under a warm air mass?

Bonus Answer: Cold front

11. EARTH AND SPACE

Writer: Andrew Chen (Senior)

Toss Up: Multiple Choice

The San Andreas fault is what specific type of fault line?

- W) Transform plate boundary
- X) Normal fault
- Y) Reverse fault
- Z) Strike slip fault

Toss Up Answer: Z

Bonus: Short Answer

There are different types of seismic waves, body waves and surface waves. Name the two different types of body waves.

Bonus Answer: P waves and S waves

12. EARTH AND SPACE

Writer: Andrew Chen (Senior)

Toss Up: Multiple Choice

What is the name of the igneous rock that is a porous volcanic glass formed by rapidly cooling lava?

W) Obsidian

X) Gabbro

Y) Basalt

Z) Pumice

Toss Up Answer: Z

Bonus: Short Answer

What are the three general types of magma?

Bonus Answer: Basaltic magma, Andesitic magma, and Rhyolitic magma

13. EARTH AND SPACE

Writer: Andrew Chen (Senior)

Toss Up: Multiple Choice

Glaciers effect the land through glacial erosion. Different geographies are formed but what is the specific name of the long narrow ridges that show where the glacier was once present?

W) Glacial retreat

X) Drumlins

Y) Glacial erotics

Z) Morianes

Toss Up Answer: Z

Bonus: Short Answer

Ice sheets and glaciers expanded to cover large areas of land during the last major glacial epoch. During which time period did this take place?

Bonus Answer: Quaternary

14. EARTH AND SPACE

Writer: Andrew Chen (Senior)

Toss Up: Multiple Choice

Sedimentary rocks are formed from accumulation of different sediments. What is the term for a rock made by living organisms or composed of materials from life forms?

W) Conglomerate

X) Evaporites

Y) Crystalline

Z) Bioclastic

Toss Up Answer: Z

Bonus: Short Answer

Give the following classifications for these sedimentary rocks, breccia, conglomerate, and shale.

Bonus Answer: All Clastic sedimentary rocks.

15. EARTH AND SPACE

Writer: Jessica Titensky

Toss Up: Multiple Choice

What is the closest star to earth

W) Sirius

- X) Betelgeuse
- Y) Alpha proxima
- Z) The sun

Toss Up Answer: Z

Bonus: Short Answer

What is the closest star to the sun

Bonus Answer: Proxima centauri

16. EARTH AND SPACE

Writer: Andrew Chen

Toss Up: Multiple Choice

How many comet-like bodies are estimated to exist in the Oort cloud?

- W) a billion
- X) a trillion
- Y) a quadrillion
- Z) a quntillion

Toss Up Answer: X

Bonus: Short Answer

What is the name of the telescope which has produced the most scientific papers out of all telescopes on the ground, located in the Atacama desert?

Bonus Answer: Very Large Telescope

17. EARTH AND SPACE

Writer: Andrew Chen

Toss Up: Short Answer

What compound are most cave stalagmites and stalactites made of?

Bonus Answer: Calcium Carbonate, CaCO₃, limestone, calcite, dolomite, marble, chalk, etc.

Bonus: Multiple Choice

Why do many rivers around the world meander when a straight path would be shorter?

- W) curves create eddies, which are more stable configurations
- X) a slight curve has faster moving water on the outside, which further erodes and enlargens the curve
- Y) there are slightly elevated regions that prevent a straight path
- Z) random drift

Bonus Answer: X

18. EARTH AND SPACE

Writer: Jan Wojcik

Toss Up: Multiple Choice

Which of the following is NOT true regarding cirrus clouds?

- W) They are typically found between 10,000 feet and 15,000 feet above sea level
- X) They can be formed from any cloud that goes under glaciation
- Y) They cover 25% of the Earth and have a heating effect
- Z) They have been seen forming on other planets such as Mars and Jupiter

Toss Up Answer: W

Bonus: Multiple Choice

The most common cloud source for a majority of tornadoes is:

- W) Cumulus
- X) Nimbostratus
- Y) Altostratus
- Z) Cumulonimbus

Bonus Answer: Z

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19. EARTH AND SPACE

Writer: Shamaul Dilmohamed

Toss Up: Short Answer

Which planet has the slowest rotation?

Bonus Answer: Venus

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Bonus: Multiple Choice

Which planet has the fastest rotation?

- W) Jupiter
- X) Saturn
- Y) Uranus
- Z) Neptune

Bonus Answer: W

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20. EARTH AND SPACE

Writer: Shamaul Dilmohamed

Toss Up: Multiple Choice

What is the penultimate spectral type of a star?

- W) F
- X) G
- Y) K
- Z) M

Toss Up Answer: Y

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Bonus: Short Answer

What spectral type is the Sun?

Bonus Answer: G

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21. EARTH AND SPACE

Writer: Shamaul Dilmohamed

Toss Up: Multiple Choice

To the nearest order of magnitude, how thick are Saturn's rings?

- W) 10 m
- X) 100 m
- Y) 1000 m
- Z) 10000 m

Toss Up Answer: W

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Bonus: Short Answer

Which planets have active plate tectonics?

Bonus Answer: Earth

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22. EARTH AND SPACE

Writer: Zoe Orlin

Toss Up: Short Answer

What is the US state with the most glaciers?

Bonus Answer: Washington

Bonus: Short Answer

How many glaciers are there in Hawaii rounded to the nearest 1000?

Bonus Answer: 0

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23. EARTH AND SPACE

Writer: Zoe Orlin

Toss Up: Multiple Choice

What happens as air rises?

W) It gets warmer

X) It gets colder

Y) The temperature fluctuates

Z) Nothing

Toss Up Answer: X

Bonus: Short Answer

How are winds named?

Bonus Answer: By the direction they are coming in

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24. EARTH AND SPACE

Writer: Zoe Orlin

Toss Up: Short Answer

What is the driving force behind all erosion?

Bonus Answer: Gravity

Bonus: Short Answer

What type of body of water does the most erosion?

Bonus Answer: Streams

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25. EARTH AND SPACE

Writer: Zoe Orlin

Toss Up: Short Answer

What determines a mineral's properties?

Bonus Answer: The internal arrangement of its atoms.

Bonus: Short Answer

What type of currents cause plates to move in the mantle?

Bonus Answer: Convection currents

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26. EARTH AND SPACE

Writer: Zoe Orlin

Toss Up: Multiple Choice

In the Northern Hemisphere, the Coriolis force deflects in which direction?

- W) Up
- X) Down
- Y) Right
- Z) Left

Toss Up Answer: Y

Bonus: Short Answer

The altitude of Polaris is equal to...

Bonus Answer: Your latitude

27. EARTH AND SPACE

Writer: Shamaul Dilmohamed

Toss Up: Short Answer

In terms of mass, what are the four biggest planets in our solar system?

Bonus Answer: Jupiter, Saturn, Neptune, Uranus

Bonus: Multiple Choice

Dark energy makes up about how much of the energy in the universe?

- W) 20%
- X) 40%
- Y) 70%
- Z) 80%

Bonus Answer: Y

28. EARTH AND SPACE

Writer: Jan Wojcik

Toss Up: Multiple Choice

Which of the following statements is FALSE regarding the volcano in each statement?

- W) Shield volcanoes can stretch up to 3 or 4 miles in diameter
- X) Cinder cone volcanoes rarely rise past 1,000 feet in elevation
- Y) Stratovolcanoes are some of the smallest volcanoes in the world
- Z) Volcanic domes commonly occur within the craters or on the flanks of large composite volcanoes

Toss Up Answer: Y

Bonus: Multiple Choice

Which of the following statements is true regarding stratovolcanoes?

- W) Most commonly occur at subduction zones
- X) They produce basaltic magma
- Y) Their eruptions are infrequent
- Z) They are never dormant

Bonus Answer: W

29. EARTH AND SPACE

Writer: Shantanu Jha

Toss Up: Short Answer

What is the average temperature of the universe today to the nearest Kelvin?

Bonus Answer: 3K

Bonus: Short Answer

What is the most common star in the Milky Way Galaxy?

Bonus Answer: Red Dwarf

30. EARTH AND SPACE

Writer: Shantanu Jha

Toss Up: Short Answer

What physical quantity is the Schwarzschild radius of a Black Hole most dependent on?

Bonus Answer: Mass

Bonus: Multiple Choice

If the event horizon of a black hole is 10 km, then what is the radius of its photon sphere?

W) 10km

X) 15km

Y) 20km

Z) 25km

Bonus Answer: X

31. EARTH AND SPACE

Writer: Shantanu Jha

Toss Up: Short Answer

What phenomena best explains why the sky is blue?

Bonus Answer: Rayleigh Scattering

Bonus: Short Answer

What are the high intensity spots of light at the horizontal points of the 22 degree halo that may form around the sun due to ice crystals in the air called?

Bonus Answer: Parhelia (ALSO ACCEPT: Sun Dogs, Parhelion)

32. EARTH AND SPACE

Writer: Shamaul Dilmohamed

Toss Up: Short Answer

If we could observe all forms of radiation, what would the brightest star be?

Bonus Answer: Betelgeuse

Bonus: Multiple Choice

In 12000 years, which star will take the place of our North Star?

W) Aldebaran

X) Vega

Y) Sirius

Z) Rigel

Bonus Answer: X

33. EARTH AND SPACE

Writer: Shamaul Dilmohamed

Toss Up: Short Answer

What spectral type does the star Betelgeuse fall into?

Bonus Answer: M

Bonus: Multiple Choice

When was the last major supernova in the Milky Way detected?

- W) 1604
- X) 1863
- Y) 1973
- Z) 1989

Bonus Answer: W

34. EARTH AND SPACE

Writer: Shamaul Dilmohamed

Toss Up: Short Answer

In which atmospheric level does the "good" ozone preside?

Bonus Answer: Stratosphere

Bonus: Short Answer

In which atmospheric level does the "bad" ozone preside?

Bonus Answer: Troposphere

35. EARTH AND SPACE

Writer: Jan Wojcik

Toss Up: Short Answer

Name the soil horizon that contains a mixture of organic matter and highly altered mineral matter and is dark in color.

Bonus Answer: A-horizon

Bonus: Short Answer

By name or number, which of the following phenomena cause acidification in agricultural soils:

- 1) Leaching of excess nitrate
- 2) Build-up in mostly plant-based organic matter
- 3) Removal of plant and animal products
- 4) Addition of nitrogen based fertilisers

Bonus Answer: All of them (accept 1,2,3,4)

36. EARTH AND SPACE

Writer: Jan Wojcik

Toss Up: Short Answer

By name or number, which of the following is not a mineral: diamond, gold, coal, silt

Bonus Answer: Coal and silt (accept 3 and 4)

Bonus: Short Answer

The Mohs scale is used to measure mineral hardness. By name or number order the following minerals in increasing order: Fluorite, Gypsum, Quartz, Talc

Bonus Answer: Talc, Gypsum, Fluorite, Quartz (accept 1 2 3 4, in that order)

37. EARTH AND SPACE

Writer: Jan Wojcik

Toss Up: Multiple Choice

Which of the following pairs of minerals share the same cleavage?

W) Fluorite and Calcite
X) Mica and Galena
Y) Cryolite and Fluorite
Z) Halite and Sylvite
Toss Up Answer: Z

Bonus: Short Answer

In how many directions does muscovite break (cleave)?

Bonus Answer: 1 (one)

38. EARTH AND SPACE

Writer: Sean Vaysburd

Toss Up: Multiple Choice

Which is not a type of rock?

- W) sedimentary
- X) metamorphic
- Y) igneous
- Z) elementary

Toss Up Answer: Z

Bonus: Short Answer

Which type of rock is formed from magma?

Bonus Answer: igneous rock

39. EARTH AND SPACE

Writer: Shanjeed Ali

Toss Up: Multiple Choice

Where is the Great Rift Valley located?

- W) Western Africa
- X) Eastern Asia
- Y) Eastern Africa
- Z) Western Asia

Toss Up Answer: Y

Bonus: Multiple Choice

Which of these countries does the Great Rift Valley not run through?

- W) Tanzania
- X) Kenya
- Y) Burundi
- Z) Angola

Bonus Answer: Z

40. EARTH AND SPACE

Writer: Shanjeed Ali

Toss Up: Short Answer

The Ring of Fire surrounds which ocean?

Bonus Answer: Pacific Ocean

Bonus: Multiple Choice

What kind of volcano is Mauna Loa?

- W) cone
- X) shield
- Y) subglacial
- Z) stratovolcano

Bonus Answer: X

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41. EARTH AND SPACE

Writer: George Papastefanou

Toss Up: Multiple Choice

How is the ISS powered?

- W) Solar Energy from photovoltaic cells
- X) Nuclear Power
- Y) A combination of solar energy and nuclear power
- Z) Rocket fuel

Toss Up Answer: W

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Bonus: Short Answer

Who was the first American astronaut in space?

Bonus Answer: Alan Shepard

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42. EARTH AND SPACE

Writer: Shanjeed Ali

Toss Up: Short Answer

In the stratosphere, what happens to the temperature as altitude increases?

Bonus Answer: increases

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Bonus: Short Answer

What does radar stand for?

Bonus Answer: RAdio Detection And Ranging

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43. EARTH AND SPACE

Writer: George Papastefanou

Toss Up: Multiple Choice

The North Pacific Gyre is mostly located within what latitudinal zone?

- W) The North Frigid Zone
- X) The Torrid Zone
- Y) The Horse Latitudes
- Z) The North Temperate Zone

Toss Up Answer: Z

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Bonus: Short Answer

What ocean current keeps Western Europe relatively warm for its latitude?

Bonus Answer: North Atlantic Current (accept North Atlantic Drift, but not Gulf Stream)

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44. EARTH AND SPACE

Writer: Jan Wojcik

Toss Up: Short Answer

Name the wave that you would typically feel during an earthquake if you were standing on the ground after feeling the first primary wave.

Bonus Answer: S-wave (secondary wave)

Bonus: Short Answer

An earthquake is measured to have a Richter scale value of around 4. Another earthquake is measured to have a Richter scale value of 7. How much smaller is the first earthquake to the second earthquake?

Bonus Answer: 1000 times smaller (accept 1000)

45. EARTH AND SPACE

Writer: George Papastefanou

Toss Up: Short Answer

How long does it take for a satellite in geosynchronous orbit to travel once around the Earth?

Bonus Answer: One day

Bonus: Short Answer

What is the orbital period, to the nearest year, of Halley's Comet?

Bonus Answer: 75 years

46. EARTH AND SPACE

Writer: Elias Milborn

Toss Up: Short Answer

Pandora is a moon of which planet?

Bonus Answer: Saturn

Bonus: Multiple Choice

Sea water is approximately what percent salt by mass?

W) 1%

X) 2%

Y) 4%

Z) 8%

Bonus Answer: Y

47. EARTH AND SPACE

Writer: Seiji Yawata

Toss Up: Multiple Choice

The Cascadia Subduction Zone separates the North American Plate and the

W) Caribbean Plate

X) Juan de Fuca Plate

Y) Okhotsk Plate

Z) Cocos Plate

Toss Up Answer: X

Bonus: Short Answer

During which geologic period did Pangaea start breaking up?

Bonus Answer: Jurassic

48. EARTH AND SPACE

Writer: Seiji Yawata

Toss Up: Multiple Choice

New York City is primarily composed of sediments that were metamorphosed during the Taconic and Acadian orogenies roughly:

- W) 450 million years ago
- X) 550 million years ago
- Y) 650 million years ago
- Z) 750 million years ago

Toss Up Answer: W

Bonus: Short Answer

When the earth is closest to the sun, what season is it in the Southern Hemisphere?

Bonus Answer: Summer

49. EARTH AND SPACE

Writer: Yevgeniy Gorbachev

Toss Up: Multiple Choice

The square of a body's orbital period is proportional to:

- W) The semi-major axis of the orbit
- X) The square of the quotient of the apocenter and pericenter heights of the orbit
- Y) The cube of the semi-major axis of the orbit
- Z) The cube of the major axis of the orbit

Toss Up Answer: Y

Bonus: Short Answer

Specific orbital energy does not vary with time according to...

Bonus Answer: Orbital Energy Conservation Equation (also acceptable: vis-viva equation)

50. EARTH AND SPACE

Writer: Justin Lam

Toss Up: Multiple Choice

Which of the following is an extrusive igneous rock?

- W) Granite
- X) Obsidian
- Y) Slate
- Z) Diorite

Toss Up Answer: X

Bonus: Multiple Choice

Which of the following minerals is the hardest?

- W) Quartz
- X) Talc
- Y) Feldspar
- Z) Corundum

Bonus Answer: Z

51. EARTH AND SPACE

Writer: Justin Lam

Toss Up: Multiple Choice

Which of the following gases make up the majority of Earth's atmosphere?

- W) Oxygen
- X) Argon
- Y) Carbon dioxide
- Z) Nitrogen

Toss Up Answer: Z

Bonus: Short Answer

What is the name for the scientific theory that describes the movement of plates across the Earth's lithosphere?

Bonus Answer: Plate tectonics

52. EARTH AND SPACE

Writer: Justin Lam

Toss Up: Short Answer

What is the shape of the path planets take around the sun?

Bonus Answer: Elliptical

Bonus: Short Answer

Name three of the closest stars to Earth.

Bonus Answer: Three of the following: Sun, Alpha Centauri, Barnard, Wolf, Luyten, Sirius

53. EARTH AND SPACE

Writer: Kerwin Chen

Toss Up: Short Answer

On the moh's scale of mineral hardness, how hard is corundum?

Bonus Answer: 9

Bonus: Short Answer

On the moh's scale of mineral hardness, how hard is orthoclase feldspar?

Bonus Answer: 6

54. EARTH AND SPACE

Writer: Nten Nylam

Toss Up: Short Answer

Which rock has a bioclastic texture, is composed of carbon, and is formed from the compaction of plant remains.

Bonus Answer: coal

Bonus: Multiple Choice

Which of these periods came first?

- W) Cretaceous
- X) Cambrian
- Y) Jurassic
- Z) Quaternary

Bonus Answer: Z

55. EARTH AND SPACE

Writer: Nten Nylam

Toss Up: Multiple Choice

The greatest distance from a planet to the sun is called?

- W) aphelion
- X) perihelion
- Y) perigee
- Z) eccentricity

Toss Up Answer: W

Bonus: Short Answer

What device was used to prove that the Earth rotates on its axis?

Bonus Answer: Foucault Pendulum

56. EARTH AND SPACE

Writer: Janine Goh

Toss Up: Short Answer

Name 3 dwarf planets

Bonus Answer: Pluto, Ceres, Makemake, Eris, Haumea (any 3)

Bonus: Short Answer

Which coloured stars are the hottest?

Bonus Answer: Blue

57. EARTH AND SPACE

Writer: Janine Goh

Toss Up: Short Answer

Which is the new satellite/telescope replacing Hubble?

Bonus Answer: James Webb Space Telescope

Bonus: Short Answer

Why is Mars red?

Bonus Answer: Oxidised iron on Mars' surface

58. EARTH AND SPACE

Writer: Janine Goh

Toss Up: Short Answer

Which scientist came up with the laws of planetary motion?

Bonus Answer: Kepler

Bonus: Short Answer

Which constellation is the star that remains stationary in northern hemisphere part of?

Bonus Answer: Ursa Minor

59. EARTH AND SPACE

Writer: Andrew Chen (Senior)

Toss Up: Multiple Choice

There are many mineral categories. Which of the following mineral groups below is classified based on varying ratios of silicon and oxygen?

- W) Sulfides
- X) Phosphates
- Y) Carbonates
- Z) Silicates

Toss Up Answer: Z

Bonus: Short Answer

Of the following minerals listed, which belong in the mineral group of silicates: Olivine, Mica, Topaz and Talc.

Bonus Answer: Olivine, Mica, Topaz (1, 2, 3)

60. EARTH AND SPACE

Writer: Nten Nylam

Toss Up: Multiple Choice

What explains the lack of hydrogen in the atmosphere, despite its relative abundance in the universe?

- W) most of it is used up in photosynthesis
- X) most of it was an unstable isotope that decayed
- Y) most of it escaped into space because of its low mass
- Z) most of it is in water molecules

Toss Up Answer: Y

Bonus: Short Answer

What is the name of the underground surface that serves as the upper limit of the zone of saturation (the point in which all material below is saturated)?

Bonus Answer: water table

61. EARTH AND SPACE

Writer: Nten Nylam

Toss Up: Multiple Choice

Which of the following is the mantle thought to be made up of?

- W) coal
- X) peridotite
- Y) granite
- Z) conglomerate

Toss Up Answer: X

Bonus: Short Answer

In hours and minutes, how long will it take for the tidal pattern to change from high tide to low tide and back to high tide?

Bonus Answer: 24 hours 50 minutes

62. EARTH AND SPACE

Writer: Andrew Chen (Senior)

Toss Up: Multiple Choice

Given the following choices chose the one that best presents the layers of the earth's atmosphere from lowest to highest altitude.

- W) Thermosphere, Mesosphere, Stratosphere, Troposphere
- X) Mesosphere, Thermosphere, Stratosphere, Troposphere
- Y) Troposphere, Stratosphere, Mesosphere, Thermosphere
- Z) Stratosphere, Troposphere, Thermosphere, Mesosphere

Toss Up Answer: Y

Bonus: Multiple Choice

There are various different particle sizes when dealing with sediments. What is the approximate particle size range of sand?

- W) 2 - 4 mm
- X) 1/16 - 2 mm
- Y) 1/256 - 1/16 mm
- Z) 4 - 64 mm

Bonus Answer: X

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63. EARTH AND SPACE

Writer: Yae June Lee

Toss Up: Multiple Choice

How are rocks sorted in water erosion?

- W) Sorted, rounded, smooth
- X) Not sorted, rounded, smooth
- Y) Not sorted, not rounded, smooth
- Z) Not sorted, not rounded, not smooth

Toss Up Answer: W

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Bonus: Short Answer

U shaped valleys are made by what type of agent of erosion?

Bonus Answer: Glaciers.

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64. EARTH AND SPACE

Writer: Benjamin Avrahami

Toss Up: Multiple Choice

Since Pumice and Rhyolite are both extrusive felsic rocks, they both have:

- W) Vesicles and low density
- X) No vesicles and silicon
- Y) Magnesium and high density
- Z) Low density and aluminum

Toss Up Answer: Z

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Bonus: Short Answer

By name or number, order these materials from lowest specific heat to highest specific heat: Ice, (liquid) water, water vapor, iron

Bonus Answer: Iron, water vapor, ice, liquid water (4, 3, 1, 2)

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65. EARTH AND SPACE

Writer: Seiji Yawata

Toss Up: Multiple Choice

Which of the following is a sedimentary rock?

- W) slate
- X) marble
- Y) basalt
- Z) sandstone

Toss Up Answer: Z

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Bonus: Short Answer

What is the name for the outer shadow cast during eclipses, which gives rise to a partial eclipse?

Bonus Answer: Penumbra

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66. EARTH AND SPACE

Writer: Seiji Yawata

Toss Up: Multiple Choice

In oceans, waves and surf current are generated by:

- W) El Nino
- X) salinity and temperature gradients
- Y) the intertropical convergence zone
- Z) wind

Toss Up Answer: Z

Bonus: Multiple Choice

During which of the following geological subdivisions was glaciation minimal on Earth?

- W) Quaternary Period
- X) Holocene Epoch
- Y) Cretaceous Period
- Z) Pleistocene Epoch

Bonus Answer: Y

67. EARTH AND SPACE

Writer: Shamaul Dilmohamed

Toss Up: Multiple Choice

What is the defining characteristic of the classification of types of supernovas?

- W) total energy released
- X) elemental spectral lines
- Y) duration of the supernova
- Z) size of the initial star

Toss Up Answer: X

Bonus: Short Answer

What element is released in a Type IA supernova that is not released in other Type I supernovae?

Bonus Answer: silicon

68. EARTH AND SPACE

Writer: Seiji Yawata

Toss Up: Multiple Choice

Although scientists are unable to obtain samples by drilling, they believe the predominant mineral in the mantle is:

- W) quartz
- X) olivine
- Y) potassium feldspar
- Z) iron pyrite

Toss Up Answer: X

Bonus: Multiple Choice

If the intent is to neutralize soil acidity, the mixing of which of the following materials in the soil would be the LEAST effective?

- W) gypsum
- X) pure CaCO₃

- Y) ground limestone
- Z) ground oyster shells

Bonus Answer: W

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69. EARTH AND SPACE

Writer: Shamaul Dilmohamed

Toss Up: Multiple Choice

Where in the H-R Diagram would Betelgeuse be found?

- W) Upper Left Corner
- X) Lower Left Corner
- Y) Upper Right Corner
- Z) Lower Right Corner

Toss Up Answer: Y

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Bonus: Multiple Choice

At what distance is absolute magnitude the same as apparent magnitude?

- W) 1 AU
- X) 100 AU
- Y) 1 parsec
- Z) 10 parsecs

Bonus Answer: Z

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70. EARTH AND SPACE

Writer: Shamaul Dilmohamed

Toss Up: Short Answer

What comet was the first one recognized by astronomers to be periodic, with a period of roughly 76 years?

Bonus Answer: Halley's Comet

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Bonus: Short Answer

Located between the A and B rings of Saturn, what famous region stretches 4800 km and is characterized by a lack of material?

Bonus Answer: Cassini Division

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71. EARTH AND SPACE

Writer: Shamaul Dilmohamed

Toss Up: Multiple Choice

Which famous astronomer created the "dirty snowball" hypothesis for comets, saying that comets were icy objects containing some dust and rock?

- W) Fred Whipple
- X) Fred Hoyle
- Y) Carl Sagan
- Z) Clyde Tombaugh

Toss Up Answer: W

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Bonus: Short Answer

Which comet was dubbed the comet of the 20th century, reaching an absolute magnitude value of -0.8 at perihelion?

Bonus Answer: Comet Hale-Bopp

72. EARTH AND SPACE

Writer: Shamaul Dilmohamed

Toss Up: Multiple Choice

Which of the following has the lowest specific heat?

W) Copper

X) Granite

Y) Marble

Z) Dry air

Toss Up Answer: W

Bonus: Short Answer

Order the following rock particles from the biggest to the smallest: 1. Sand 2. Silt 3. Pebbles 4. Clay

Bonus Answer: 3, 1, 2, 4

73. EARTH AND SPACE

Writer: Shamaul Dilmohamed

Toss Up: Short Answer

What are two general types of soils that have developed in the United States?

Bonus Answer: pedocals and pedalfers

Bonus: Short Answer

What are the two most prominent elements dissolved in seawater?

Bonus Answer: Chlorine and Sodium

74. EARTH AND SPACE

Writer: Shamaul Dilmohamed

Toss Up: Short Answer

What is the name of Uranus' smallest moon, which is best known for the idea that it was shattered in a collision billions of years ago and reformed?

Bonus Answer: Miranda

Bonus: Short Answer

Which two moons in the solar system are bigger than the smallest planet?

Bonus Answer: Ganymede and Titan

75. EARTH AND SPACE

Writer: Shamaul Dilmohamed

Toss Up: Multiple Choice

Which of the following minerals has the highest number on the Mohs hardness scale?

W) Apatite

X) Fluorite

Y) Quartz

Z) Orthoclase

Toss Up Answer: Y

Bonus: Short Answer

What are the three most abundant elements in Earth's crust?

Bonus Answer: Oxygen, Silicon, Aluminum

76. EARTH AND SPACE

Writer: Shamaul Dilmohamed

Toss Up: Short Answer

What are lines on a topographic map that connect points at the same elevation called?

Bonus Answer: Contour lines

Bonus: Multiple Choice

In which state is the most bituminous coal produced?

W) Kentucky

X) Pennsylvania

Y) Wyoming

Z) West Virginia

Bonus Answer: Z

77. EARTH AND SPACE

Writer: Benjamin Avrahami

Toss Up: Multiple Choice

Which of these is not equivalent to Euclid's parallel postulate?

W) There exist 2 triangles which are similar but not congruent

X) The Pythagorean Theorem

Y) The interior angles of a quadrilateral add up to 360 degrees

Z) The exterior angles of a polygon add up to 360 degrees

Toss Up Answer: Z

Bonus: Short Answer

If there are two strings that are a fifth apart in pitch, what is the ratio of their lengths?

Bonus Answer: 2:3 or 3:2

78. EARTH AND SPACE

Writer: Benjamin Avrahami

Toss Up: Multiple Choice

What element accounts for the second-most percentage of volume of the Earth's crust?

W) Oxygen

X) Calcium

Y) Potassium

Z) Silicon

Toss Up Answer: Y

Bonus: Short Answer

Give four pieces of information that would be present on a typical weather map.

Bonus Answer: Any four of the following: Temperature, visibility, weather or weather conditions, dew point, wind speed, wind direction, pressure or barometric pressure, precipitation, and cloud cover

79. EARTH AND SPACE

Writer: Olivia Gallager

Toss Up: Short Answer

How many planets in our solar system have moons?

Bonus Answer: 6

Bonus: Short Answer

What layer of the atmosphere lies between the troposphere and mesosphere?

Bonus Answer: Stratosphere

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80. EARTH AND SPACE

Writer: Benjamin Avrahami

Toss Up: Multiple Choice

At above what size does a rock need to be in order to be a boulder?

W) 15.3

X) 25.6

Y) 40.2

Z) 22.9

Toss Up Answer: X

Bonus: Short Answer

At which two zones of Earth's atmosphere does the temperature rise as the altitude increases?

Bonus Answer: Stratosphere and Thermosphere

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81. EARTH AND SPACE

Writer: Benjamin Avrahami

Toss Up: Short Answer

From least to greatest, order these minerals in order of pressure needed to create it: Schist, Phyllite, Gneiss, Slate

Bonus Answer: 3, 2, 4, 1

Bonus: Short Answer

During what era did oxygen begin to enter the atmosphere in abundance?

Bonus Answer: Early Proterozoic or Proterozoic

=====

82. EARTH AND SPACE

Writer: Yevgeniy Gorbachev

Toss Up: Short Answer

What is the fourth most common element in the universe?

Bonus Answer: Oxygen.

Bonus: Multiple Choice

The maximum mass for a white dwarf is:

W) 3 solar masses

X) 5 solar masses

Y) 1.4 solar masses

Z) .5 solar masses

Bonus Answer: Y

=====

83. EARTH AND SPACE

Writer: Mohammed Haque

Toss Up: Multiple Choice

How many days (24 hours) does it take for Mars to make one full rotation around the Sun?

W) 687 days

X) 997

Y) 453

Z) 503

Toss Up Answer: W

Bonus: Multiple Choice

Why does Mars appear to have a red tint when looking through a telescope?

W) It's atmosphere is composed of Argon

X) The iron within the dust reacts with the Oxygen in the air.

Y) The neon in it's atmosphere.

Z) Non of the above.

Bonus Answer: X

84. EARTH AND SPACE

Writer: Yevgeniy Gorbachev

Toss Up: Short Answer

Which planet has a group of asteroids at its L5 point?

Bonus Answer: Jupiter

Bonus: Multiple Choice

Which one of Jupiter's moons is predominantly covered in ice and has a subsurface ocean?

W) Io

X) Callisto

Y) Europa

Z) Lysithea

Bonus Answer: Y

85. EARTH AND SPACE

Writer: Mohammed Haque

Toss Up: Multiple Choice

How many moons does Neptune have?

W) 22

X) 34

Y) 14

Z) 12

Toss Up Answer: Y

Bonus: Multiple Choice

What is Saturn's atmosphere mostly composed of?

W) Helium

X) Amonia

Y) Hydrogen

Z) Carbon

Bonus Answer: Y

86. EARTH AND SPACE

Writer: Yevgeniy Gorbachev

Toss Up: Short Answer

What is the most geologically active object in the solar system and why?

Bonus Answer: Io, because of tidal forces from Jupiter, Europa, Ganymede, and Callisto.

Bonus: Short Answer

What is Io's surface primarily composed of?

Bonus Answer: Silicates and sulfur compounds.

87. EARTH AND SPACE

Writer: Prangon Ghose

Toss Up: Short Answer

What is the name of the largest volcanic mountain on Mars?

Bonus Answer: Olympus Mons

Bonus: Short Answer

Which spacial event marks the beginning of spring in the Northern Hemisphere

Bonus Answer: Vernal Equinox (Accept: Spring Equinox)

88. EARTH AND SPACE

Writer: Prangon Ghose

Toss Up: Multiple Choice

Which planet's tilt of the axis is closest to that of Mars?

- W) Mercury
- X) Venus
- Y) Earth
- Z) Jupiter

Toss Up Answer: Y

Bonus: Multiple Choice

Which planet rotates the fastest in our solar system?

- W) Earth
- X) Jupiter
- Y) Pluto
- Z) Uranus

Bonus Answer: X

89. EARTH AND SPACE

Writer: Yae June Lee

Toss Up: Multiple Choice

What happened to the melted rock after it goes through solidification to form basalt?

- W) It occurred rapidly, with fine grained minerals
- X) Slowly, coarse grained minerals
- Y) Rapidly, coarse trained minerals
- Z) Slowly, fine grained minerals

Toss Up Answer: W

Bonus: Short Answer

What are two surface traits that affect the rate of surface runoff?

Bonus Answer: Slope of land surface, soil type or composition, vegetation, porosity of soil, soil saturation.(any two of these answers are acceptable.)

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90. EARTH AND SPACE

Writer: Yae June Lee

Toss Up: Multiple Choice

What is the relationship between size of a particle and the capillarity of soil?

- W) As soil particle increases, capillarity increases.
- X) As soil size increases, capillarity decreases.
- Y) As soil size increases, capillarity stays the same.
- Z) As soil size increases, the capillarity curves in a parabola.

Toss Up Answer: X

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Bonus: Short Answer

Why do polar jet streams vary throughout the seasons?

Bonus Answer: The rays of the sun shift north of the equator during the summer.

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91. EARTH AND SPACE

Writer: Elias Milborn

Toss Up: Multiple Choice

Which of the following is a term specifically given to water that replenishes an aquifer?

- W) Recharge
- X) Discharge
- Y) Hydraulic
- Z) Permeable

Toss Up Answer: W

=====

Bonus: Multiple Choice

When a strong south wind occurs along the west coast of North America, Ekman transport causes water to move to which of the following?

- W) onshore
- X) offshore
- Y) alongshore to the south
- Z) alongshore to the north

Bonus Answer: W

=====

92. EARTH AND SPACE

Writer: Elias Milborn

Toss Up: Multiple Choice

In which of the following locations is it possible to find an esker formed during the Pleistocene [PLY-stuh-seen] epoch?

- W) Maryland
- X) West Virginia
- Y) Tennessee
- Z) Iowa

Toss Up Answer: Z

=====

Bonus: Short Answer

Calculate the percent relative humidity for air at 70°F containing 10 millibars of water vapor if the saturation vapor

pressure is 25 millibars at that temperature:

Bonus Answer: 40%

93. EARTH AND SPACE

Writer: Zoe Orlin

Toss Up: Short Answer

Where is the majority of Earth's freshwater "locked up"?

Bonus Answer: Antarctica

Bonus: Short Answer

What are the four terrestrial planets?

Bonus Answer: Earth, Mars, Mercury, Venus

94. EARTH AND SPACE

Writer: Zoe Orlin

Toss Up: Short Answer

Does a person weigh less at the equator or the poles?

Bonus Answer: Equator

Bonus: Short Answer

Does one move faster on the equator or on the poles?

Bonus Answer: Equator

95. EARTH AND SPACE

Writer: Zoe Orlin

Toss Up: Multiple Choice

Rounded to the nearest thousand, what is the circumference of the globe?

W) 25,000

X) 26,000

Y) 27,000

Z) 28,000

Toss Up Answer: W

Bonus: Short Answer

In which country are the oldest rocks on Earth located?

Bonus Answer: Canada

96. EARTH AND SPACE

Writer: Zoe Orlin

Toss Up: Multiple Choice

How many miles per hour is the Earth moving?

W) 65,000

X) 67,000

Y) 69,000

Z) 70,000

Toss Up Answer: X

Bonus: Short Answer

When magma hardens into rock, which type of rock is it?

Bonus Answer: Igneous

=====

97. EARTH AND SPACE

Writer: Zoe Orlin

Toss Up: Multiple Choice

Moonquakes occur due to

W) Asteriods

X) Tidal stresses

Y) Rotation irregularities

Z) Moonquakes do not happen

Toss Up Answer: X

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Bonus: Short Answer

Where did the largest earthquake ever happen?

Bonus Answer: Alaska

=====

98. EARTH AND SPACE

Writer: Zoe Orlin

Toss Up: Multiple Choice

What was the magnitude of the largest earthquake ever?

W) 9

X) 9.1

Y) 9.5

Z) 9.6

Toss Up Answer: Z

=====

Bonus: Multiple Choice

How much north does the Earth's magnetic north pole move per year?

W) 30 miles

X) 35 miles

Y) 40 miles

Z) 45 miles

Bonus Answer: Y

=====

99. EARTH AND SPACE

Writer: Shantanu Jha

Toss Up: Multiple Choice

Which of these units is defined as "3.26 light-years"?

W) Astronomical Unit

X) Parsec

Y) Gigasphere

Z) Kilometer

Toss Up Answer: X

=====

Bonus: Multiple Choice

What are the two neighboring galaxies of the Milky Way known as?

W) The Keplers

X) Magellanic Clouds

Y) Twin Cities

Z) Petronas Galaxies

Bonus Answer: X

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