

- 1 The edges of the moving plates on the Earth's surface are often where
 - a. floods occur.
 - b. earthquakes occur.
 - c. hurricanes occur.
 - d. large lakes occur.
 - e. glaciers occur.

- 2 Had Jupiter ignited, we would be living in a multiple star system. Such systems
 - a. are extremely rare.
 - b. have never been seen.
 - c. are quite common.
 - d. are almost universal.

- 3 The current effort to defend the Earth against space impacts consists of
 - a. finding places to hide..
 - b. building a space-patrol fleet of asteroid-killers.
 - c. re-directing Star-Wars anti-missile weapons.
 - d. finding most near-Earth asteroids.
 - e. finding most dino-killer type asteroids.

- 4 which of the following particles would be repelled by a proton?
 - a. neutron.
 - b. electron.
 - c. neutrino.
 - d. positron.

- 5 The ion tail of a comet
 - a. consists of straight streamers.
 - b. is a ball around the nucleus.
 - c. shoots out in random directions..
 - d. is curved and fuzzy-looking.

- 6 The side of the Moon that faces away from the Earth
 - a. consists almost entirely of lunar maria.
 - b. looks exactly like the side that faces the Earth.
 - c. has only a few small lunar maria.

- 7 Underneath a place where the sea floor is spreading, one expects there to be
 - a. a bubble in the Earth's mantle.
 - b. a descending convection current in the Earth's mantle.
 - c. a horizontal current in the Earth's mantle.
 - d. a rising convection current in the Earth's mantle.
 - e. a magnetic domain in the Earth's core.

- 8 Icy objects were ejected from the inner solar system to form
 - a. the Moons of the Jovian planets.
 - b. the asteroid belt.
 - c. the Oort Cloud.
 - d. the Kuiper belt.
 - e. the interstellar dust.

- 9 In the original Solar Nebula, rock, iron, and other metals were lost
 - a. far from the center where it was cool.
 - b. close to the center where it was hot.
 - c. everywhere in the nebula.
 - d. nowhere in the nebula.

- 10 Which of the following statements about the moons of terrestrial planets is currently accepted?
 - a. moons typically form near them.
 - b. they sometimes capture moons by accident.
 - c. they never have moons.

- 11 Planetesimals of rock and iron, prevented from forming a planet by Jupiter's gravity, became
 - a. the interstellar dust.
 - b. the Oort Cloud.
 - c. the asteroid belt.
 - d. the Kuiper belt.
 - e. the Moons of the Jovian planets.

- 12 In a region of the atmosphere in which the temperature falls with increasing altitude
 - a. you expect no changes.
 - b. you expect rapid changes.

- 13 Solar prominences are lifted out of the Sun's surface by
 - a. magnetic lines of force.
 - b. gravity.
 - c. convection currents.
 - d. centrifugal force.
 - e. electric lines of force.

- 14 If an asteroid that is 50 meters in diameter strikes the Earth, the result is likely to be
 - a. negligible.
 - b. a planet-wide catastrophe.
 - c. similar to a nuclear explosion.

- 15 In the reaction that powers our Sun, protons collide to make
 - a. deuterons in one step.
 - b. helium-3 in one step.
 - c. helium-4 in one step.
 - d. tritium in one step.
 - e. carbon in one step.

- 16 A large asteroid impact causes the extinction of whole species mainly by the effects of the
- light and heat: It incinerates them.
 - noise: It scares them to death.
 - smoke and dust: It blocks the sunlight.
 - blast and shock wave: It blows them away.
- 17 When tectonic plates move past each other, they usually cause
- hurricanes.
 - tornados.
 - earthquakes.
 - forest fires.
 - floods.
- 18 The currently accepted theory of how the Moon formed is the
- breakup or fission theory.
 - collision theory.
 - co-formation theory.
 - capture theory.
 - divine intervention theory.
- 19 A spring tide can be expected when there is a
- new moon.
 - first quarter moon.
 - waxing gibbous moon
 - waxing crescent moon.
 - waning crescent moon.
- 20 Pressure waves are transmitted through
- solids but not liquids.
 - liquids but not solids.
 - both solids and liquids.
- 21 The important difference between matter in the radiation zone and matter in the convection zone is that
- the radiation zone has atoms with electrons.
 - the radiation zone is cooler.
 - the radiation zone has no atoms with electrons.
 - the radiation zone is farther from the center.
 - the radiation zone is closer to the center.
- 22 The Earth's distance from the Sun is defined to be 1 astronomical unit. Neptune is about 30 astronomical units from the Sun. An object in the Oort Cloud might be at a distance from the Sun of
- 40,000 astronomical units.
 - 400 astronomical units.
 - 40 astronomical units.
 - 0.5 astronomical units.
 - 3 astronomical units.

- 23 Relative to the other layers of the atmosphere, the ionosphere is
- at the bottom.
 - second from the bottom.
 - at the top.
 - second from the top.
 - overlapping two other layers.
- 24 The twisting of magnetic field lines by the Sun's differential rotation causes
- solar gravity.
 - solar eclipses.
 - sun dogs.
 - solar granules.
 - sunspots.
- 25 The layer of the Earth's interior that consists of dense, semiliquid material is the
- crust.
 - inner core.
 - outer core.
 - mesosphere.
 - mantle.
- 26 The Moon's core is thought to consist of
- a central core of liquid iron and an outer core of solid iron.
 - a central core of solid iron and an outer core of liquid iron.
 - iron-rich rock all the way through.
 - a central core of solid iron and an outer core of semiliquid rock.
 - a central core of rock and an outer core of iron.
- 27 A solar flare is caused by
- magnetic field lines lifting out of the surface.
 - clouds of sodium vapor.
 - turbulence in the Sun's photosphere.
 - reconnecting magnetic field lines.
 - convection currents below the photosphere.
- 28 The high tides drawn up by the Moon's gravity run ahead of the Moon's motion because of
- friction with the rotating Earth.
 - the finite speed of gravity.
 - the effect of the Sun's gravity.
 - dragging by the Earth's magnetic field.
 - the delayed response of the ocean.
- 29 A planet with a large system of moons would have to be a
- Jovian Planet.
 - terrestrial planet.
 - Kuiper Belt object.

- 30 The temperature of a gas measures the
- density of the gas.
 - volume of the gas.
 - energy of motion of its atoms or molecules.
 - number of other states that have the same energy.
 - sum of all its stored energy.
- 31 The impacts of large objects on the surface of the Moon have caused
- highlands.
 - scarps.
 - jumbled terrain.
 - rift valleys.
 - craters.
- 32 The gravitational influence of the planets mostly causes asteroids to
- move from the inner solar system to the asteroid belt.
 - move from the asteroid belt into the inner solar system.
 - remain in the asteroid belt.
 - stay out of the inner solar system.
- 33 The Sun's corona is the place where
- convection cells come from.
 - the Solar Wind comes from.
 - visible light comes from.
 - sunspots start.
 - spicules come from.
- 34 Asteroids are made of
- concrete and marble.
 - rock and iron.
 - ice and frozen gas.
 - styrofoam and poster paint.
 - gold and silver.
- 35 The objects of the Kuiper belt are mostly orbiting
- between the orbits of Earth and Mars.
 - among the Jovian planets.
 - within the asteroid belt.
 - beyond all of the Jovian planets.
- 36 Detecting too few neutrinos from the Sun was a problem because it meant that
- the detectors were not working.
 - government grant money would be lost.
 - some part of the theory was wrong.

- 37 The statement that lunar material is much "drier" than Earth material refers to the absence of
- mud.
 - ice.
 - liquid water.
 - hydrated minerals.
- 38 The radiant of a meteor shower is the
- rate at which meteors are seen.
 - point in the sky the meteors seem to be coming from.
 - apparent radius of the shower.
 - angular distance that each meteor travels.
 - point in the sky the meteors seem to be going toward.
- 39 Low tide should occur only when the Moon is
- over the opposite side of the Earth.
 - on the horizon.
 - setting.
 - rising.
 - directly overhead.
- 40 The mass of a carbon atom is 12.00amu while the mass of a helium-4 atom is 4.003amu. If three atoms of helium fuse to form carbon, how much mass is converted into energy?
- 0.002amu
 - 0.009amu
 - 0.012amu
 - 0.006amu
 - 0.004amu
- 41 The large objects in our solar system come in
- in just two size categories: the Sun and everything else.
 - in just three size categories, with the Sun as one of them.
 - in just four size categories, with the Sun as one of them.
 - a continuous range of sizes.
- 42 The plane that contains the Earth's orbit around the Sun is also called the plane of the ecliptic. When you look for planets in the sky, you expect to find
- all of them except for Venus near the ecliptic.
 - all of them except for Neptune near the ecliptic.
 - all of them except Pluto near the ecliptic.
 - all of them except for Uranus near the ecliptic.
 - none of them except for Mars near the ecliptic.
- 43 The Lunar Regolith is
- a rock layer just beneath the lunar surface.
 - a layer of dirt on the lunar surface.
 - the layer just above the core.
 - the soft part of the lunar core.
 - another name for the lunar crust.

- 44 Because of the Earth's rotation and the Moon's orbit, the time from one high tide to the next should be closest to
- twelve hours.
 - six and a quarter hours.
 - six hours.
 - twelve a half hours.
 - twenty-five hours.
- 45 The first generally accepted example of Sea-floor spreading was under the
- Atlantic Ocean.
 - English Channel.
 - Indian Ocean.
 - Pacific Ocean.
 - Gulf of Mexico.
- 46 The year 2001 was a maximum of the sunspot cycle. Another should occur in
- 2006.
 - 2023.
 - 2014.
 - 2010.
 - 2025.
- 47 Magnetic fields on the surface of the Sun are measured by observing
- interplanetary dust grains.
 - wavelength shifts in spectral lines.
 - radar images of the Sun.
 - X-Ray emissions.
 - the polarization of sunlight.
- 48 The possibility that increasing the amount of carbon dioxide in the air will raise the average temperature of the Earth is referred to as the
- Stark Effect.
 - creation of the ionosphere.
 - creation of smog.
 - destruction of the ozone layer.
 - Greenhouse Effect.

Answer Key: AHX2P1 Spring 2004

- 1 Choice b. (earthquakes occur.)
- 2 Choice c. (are quite common.)
- 3 Choice e. (finding most dino-killer type asteroids.)
- 4 Choice d. (positron.)
- 5 Choice a. (consists of straight streamers.)
- 6 Choice c. (has only a few small lunar maria.)
- 7 Choice d. (a rising convection current in the Earth's mantle.)
- 8 Choice c. (the Oort Cloud.)
- 9 Choice d. (nowhere in the nebula.)
- 10 Choice b. (they sometimes capture moons by accident.)
- 11 Choice c. (the asteroid belt.)
- 12 Choice b. (you expect rapid changes.)
- 13 Choice a. (magnetic lines of force.)
- 14 Choice c. (similar to a nuclear explosion.)
- 15 Choice a. (deuterons in one step.)
- 16 Choice c. (smoke and dust: It blocks the sunlight.)
- 17 Choice c. (earthquakes.)
- 18 Choice b. (collision theory.)
- 19 Choice a. (new moon.)
- 20 Choice c. (both solids and liquids.)
- 21 Choice c. (the radiation zone has no atoms with electrons.)
- 22 Choice a. (40,000 astronomical units.)
- 23 Choice c. (at the top.)
- 24 Choice e. (sunspots.)
- 25 Choice e. (mantle.)
- 26 Choice c. (iron-rich rock all the way through.)
- 27 Choice d. (reconnecting magnetic field lines.)
- 28 Choice a. (friction with the rotating Earth.)
- 29 Choice a. (Jovian Planet.)
- 30 Choice c. (energy of motion of its atoms or molecules.)
- 31 Choice e. (craters.)
- 32 Choice b. (move from the asteroid belt into the inner solar system.)
- 33 Choice b. (the Solar Wind comes from.)
- 34 Choice b. (rock and iron.)
- 35 Choice d. (beyond all of the Jovian planets.)
- 36 Choice c. (some part of the theory was wrong.)

- 37 Choice d. (hydrated minerals.)
- 38 Choice b. (point in the sky the meteors seem to be coming from.)
- 39 Choice b. (on the horizon.)
- 40 Choice b. (0.009amu)
- 41 Choice b. (in just three size categories, with the Sun as one of them.)
- 42 Choice c. (all of them except Pluto near the ecliptic.)
- 43 Choice b. (a layer of dirt on the lunar surface.)
- 44 Choice d. (twelve a half hours.)
- 45 Choice a. (Atlantic Ocean.)
- 46 Choice b. (2023.)
- 47 Choice b. (wavelength shifts in spectral lines.)
- 48 Choice e. (Greenhouse Effect.)

Solutions

- 1 Module 021: Continental Drift Question 021.11
- 2 Module 017: Formation of the Solar System: Question 017.33
- 3 Module 016: Earth Impacts: Question 016.41
- 4 Module 042: Nuclear Fire Question 042.15
- 5 Module 015: Comets in Detail: Question 015.13
- 6 Module 022: The Earth's Moon Question 022.15
- 7 Module 021: Continental Drift Question 021.33
- 8 Module 017: Formation of the Solar System: Question 017.41
- 9 Module 017: Formation of the Solar System: Question 017.21
- 10 Module 014: Solar System Survey: Question 014.23
- 11 Module 017: Formation of the Solar System: Question 017.51
- 12 Module019: The Earth's Atmosphere Question 019.14
- 13 Module 041: Solar Magnetism and Activity Question 041.31
- 14 Module 016: Earth Impacts: Question 016.21
- 15 Module 042: Nuclear Fire Question 042.41
- 16 Module 016: Earth Impacts: Question 016.33
- 17 Module 021: Continental Drift Question 021.41
- 18 Module 022: The Earth's Moon Question 022.51
- 19 Module 018: The Moon and the Tides: Question 018.21
- 20 Module020:Earth and Moon Interiors Question 020.13
- 21 Module 040: Survey of the Sun Question 040.14
- 22 Module 015: Comets in Detail: Question 015.32
- 23 Module019: The Earth's Atmosphere Question 019.28
- 24 Module 041: Solar Magnetism and Activity Question 041.22
- 25 Module020: Earth and Moon Interiors Question 020.24
- 26 Module020:Earth and Moon Interiors Question 020.35
- 27 Module 041: Solar Magnetism and Activity Question 041.41
- 28 Module 018: The Moon and the Tides: Question 018.42
- 29 Module 014: Solar System Survey: Question 014.34
- 30 Module 042: Nuclear Fire Question 042.31
- 31 Module 022: The Earth's Moon Question 022.22
- 32 Module 016: Earth Impacts: Question 016.12
- 33 Module 040: Survey of the Sun Question 040.26
- 34 Module 014: Solar System Survey: Question 014.41
- 35 Module 015: Comets in Detail: Question 015.22
- 36 Module 042: Nuclear Fire Question 042.52

- 37 Module 022: The Earth's Moon Question 022.41
- 38 Module 015: Comets in Detail: Question 015.46
- 39 Module 018: The Moon and the Tides: Question 018.12
- 40 Module 042: Nuclear Fire Question 042.21
- 41 Module 014: Solar System Survey: Question 014.12
- 42 Module 017: Formation of the Solar System: Question 017.14
- 43 Module 022: The Earth's Moon Question 022.32
- 44 Module 018: The Moon and the Tides: Question 018.31
- 45 Module 021: Continental Drift Question 021.22
- 46 Module 040: Survey of the Sun Question 040.33
- 47 Module 041: Solar Magnetism and Activity Question 041.11
- 48 Module 019: The Earth's Atmosphere Question 019.34