

Science Bowl

ASTRONOMY

ASTR-91; Multiple Choice: The largest circular storm in our solar system is on the surface of which of the following planets?

- w) Jupiter
- x) Venus
- y) Uranus
- z) Earth

ANSWER: W -- JUPITER

ASTR-91; Short Answer: The rapidly moving stream of charged particles that is being driven away from the sun is known as what?

ANSWER: SOLAR WIND

ASTR-91; Multiple Choice: The biggest asteroid known is:

- w) Vesta
- x) Icarus
- y) Ceres
- z) Eros

ANSWER: Y -- CERES

ASTR-91; Multiple Choice: Rounded to the nearest day, the Mercurian year is equal to:

- w) 111 days
- x) 88 days
- y) 50 days
- z) 25 days

ANSWER: X -- 88 DAYS

ASTR-91; Multiple Choice: One of the largest volcanos in our solar system-if not the largest-is named Olympus Mons. This volcano is located on:

- w) Jupiter's moon Callisto
- x) Venus
- y) Saturn's moon Titan
- z) Mars

ANSWER: Z -- MARS

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ASTR-91; Short Answer: One of the largest volcanos in our solar system, if not the largest, is named Olympus Mons. Name the planet which has the volcano.

ANSWER: MARS

ASTR-91; Multiple Choice: One Jupiter day is equal to which of the following?

- w) 30 hrs 40 min
- x) 9 hrs 50 min
- y) 3 hrs 20 min
- z) 52 hrs 10 min

ANSWER: X -- 9 HRS 50 MIN

ASTR-91; Multiple Choice: The time interval between two successive occurrences of a specific type of alignment of a planet (or the moon) with the sun and the earth is referred to as:

- w) a conjunction
- x) an opposition
- y) a sidereal period
- z) a synodic period.

ANSWER: Z -- A SYNODIC PERIOD (conjunction and opposition are names of specific configurations)

ASTR-91; Short Answer: During the period between 1979 and 1998, what is the farthest planet from the sun?

ANSWER: NEPTUNE

ASTR-91; Multiple Choice: Of the following four times, which one best represents the time it takes energy generated in the core of the sun to reach the surface of the sun and be radiated?

- w) Three minutes
- x) Thirty days
- y) One thousand years
- z) One million years

ANSWER: Z -- ONE MILLION YEARS

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ASTR-91; Multiple Choice: The sunspot cycle is:

- w) 3 years
- x) 11 years
- y) 26 years
- z) 49 years

ANSWER: X -- 11 YEARS

ASTR-91; Multiple Choice: The Hertzsprung-Russel Diagram of stars DIRECTLY compares what TWO of the following properties of stars?

- w) size
- x) temperature
- y) luminosity
- z) density

ANSWER: B and C -- TEMPERATURE AND LUMINOSITY (Size and distance of stars can be inferred from H-R diagram but not directly)

ASTR-91; Multiple Choice: The andromeda Galaxy is which of the following types of galaxies?

- w) elliptical
- x) spiral
- y) barred-spiral
- z) irregular

ANSWER: X -- SPIRAL

ASTR-91; Multiple Choice: About how many light years across is the Milky Way? Is it:

- w) 1,000
- x) 10,000
- y) 100,000
- z) 1,000,000

ANSWER: Y -- 100,000

ASTR-91; Short Answer: Which unlucky Apollo lunar landing was canceled after an oxygen tank exploded?

ANSWER: APOLLO 13

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ASTR-91; Short Answer: What device first proved that Earth rotates on its axis?

ANSWER: FOUCAULT PENDULUM

ASTR-91; Short Answer: Which is the smallest planet in our solar system?

ANSWER: PLUTO

ASTR-91; Which planet has a moon almost as big as the planet itself?

ANSWER: PLUTO

ASTR-91; Short Answer: What distinction is Sally K. Ride known for?

ANSWER: FIRST AMERICAN WOMAN IN SPACE

ASTR-91; Short Answer: In what year did Neil Armstrong make his historic walk on the Moon?

ANSWER: 1969

ASTR-91; Short Answer: Only one planet in the solar system has a day which lasts longer than its year. Name this planet.

ANSWER: VENUS

ASTR-91; Short Answer: What is the heavenly body Charon (pron: kar-en), that's spelled C-h-a-r-o-n?

ANSWER: PLUTO'S MOON

ASTR-91; Short Answer: Where in space is Cassini's division?

ANSWER: BETWEEN TWO RINGS OF SATURN

ASTR-91; Short Answer: Who was the first black American astronaut in space?

ANSWER: (GUION S.) BLUFORD

Science Bowl

ASTRONOMY

ASTR-91; Short Answer: What is the Vostok 1?

ANSWER: THE FIRST MANNED SPACECRAFT

ASTR-91; Multiple Choice: Heliocentric (pron: he-lee-o-sen-trik) means around:

- w) Jupiter
- x) the Moon
- y) the Sun
- z) Neptune

ANSWER: Y -- THE SUN

ASTR-91; Short Answer: Triton, Neptune's moon, has an ocean made of a liquid. What is this liquid?

ANSWER: NITROGEN

ASTR-91; Multiple Choice: Who was the first man to classify stars according to their brightness. Was it:

- w) Aristarchus
- x) Pythagorus
- y) Copernicus
- z) Hipparchus

ANSWER: Z -- HIPPARCHUS

ASTR-91; Multiple Choice: For what reason was the Schmidt telescope specially built? Was it to serve as:

- w) a sky camera
- x) a radio telescope
- y) an optical telescope
- z) a solar telescope

ANSWER: W -- A SKY CAMERA

ASTR-91; Short Answer: What is the star nearest to the sun?

ANSWER: ALPHA CENTAURI or PROXIMA CENTAURI

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ASTR-91; Multiple Choice: The greatest distance of a planet from the sun is called what? Is it the planet's:

- w) aphelion (pron: ah-feel-yen)
- x) perihelion (pron: per-eh-heel-yen)
- y) helix
- z) eccentricity

ANSWER: W -- APHELION

ASTR-91; Short Answer: What is the name given to very bright meteors or bolides?

ANSWER: FIREBALLS

ASTR-91; Multiple Choice: How is the atmospheric pressure of Mars as compared to the atmospheric pressure of the earth? Is it:

- w) about the same as the earth's
- x) about 100 times as great as the earth's
- y) about 1/200th that of the earth's
- z) half as much as that of the earth's

ANSWER: Y -- ABOUT 1/200th THAT OF THE EARTH'S

ASTR-91; Short Answer: What gas is the main component of the atmosphere of Mars?

ANSWER: CARBON DIOXIDE

ASTR-91; Multiple Choice: The planet Jupiter has a mass that is:

- w) equal to the combined masses of the earth and Mars
- x) equal to the combined masses of Saturn and Pluto
- y) equal to the combined masses of Saturn, Neptune and Uranus
- z) greater than the combined masses of all of the planets

ANSWER: Z -- GREATER THAN THE COMBINED MASSES OF ALL OF THE PLANETS

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ASTRONOMY

ASTR-91; Multiple Choice: Which one of the following moon features is named Copernicus? Is it a:

- w) sea
- x) crater
- y) mountain range
- z) rill

ANSWER: B-- A CRATER

ASTR-91; Short Answer: On which day of the year does the summer solstice usually occur?

ANSWER: JUNE 21

ASTR-91; Short Answer: When the earth is farthest from the sun, what season is it in the Northern Hemisphere?

ANSWER: SUMMER

ASTR-91; Short Answer: Of the nine known planets, seven have one or more natural satellites. Name the only two moonless planets.

ANSWER: VENUS AND MERCURY

ASTR-91; Short Answer: The English nickname for this CONSTELLATION is "The Chained Maiden". Give me the astronomer's name for this constellation.

ANSWER: ANDROMEDA

ASTR-91; Short Answer: Hercules is a constellation which is commonly viewed in the summer in North America. In which of the seasons is the constellation "Pegasus" normally viewed?

ANSWER: AUTUMN

ASTR-91; Short Answer: The brightest star in this constellation is Vega. In which constellation can Vega be found?

ANSWER: LYRA

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ASTRONOMY

ASTR-91; Short Answer: The brightest star in this constellation is Aldebaran (pron: al-DEB-ar-on). In which constellation can this star be found?

ANSWER: TAURUS

ASTR-91; Short Answer: A binary star system lends itself very well to a determination of the total mass of the binary star system. What TWO observables must be measured to make the total mass determination.

ANSWER: 1) SEPARATION OF THE TWO STARS
2) THE STARS' PERIOD OF REVOLUTION

ASTR-91; Short Answer: The Orion Nebula is a good example of what kind of nebula?

ANSWER: EMISSION NEBULA

ASTR-91; True-False: A major component of the interstellar media consists of charged particles which have speeds close to that of light. What are these charged particles called?

ANSWER: COSMIC RAYS

ASTR-91; Multiple Choice: A typical galaxy, such as our Milky Way galaxy, contains how many billion stars? Is it approximately:

- w) 10 billion
- x) 40 billion
- y) 200 billion
- z) 800 billion

ANSWER: Y -- 200 BILLION

ASTR-91; Short Answer: What do we call the path in the sky that the sun appears to traverse over the course of a year?

ANSWER: ECLIPTIC

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ASTRONOMY

ASTR-91; Multiple Choice: Refracting telescopes always contain which one of the following?

- w) mirrors
- x) lenses
- y) television systems
- z) film

ANSWER: X -- LENSES

ASTR-91; Multiple Choice: A comet's tail points in which direction?

- w) toward the sun
- x) toward the earth
- y) behind the comet in its orbit
- z) away from the sun

ANSWER: Z -- AWAY FROM THE SUN

ASTR-91; Multiple Choice: Spectral line splitting due to the influence of magnetic fields is called:

- w) Boltzmann Effect
- x) Zeeman Effect
- y) Planck Effect
- z) Zanstra's Effect

ANSWER: X -- ZEEMAN EFFECT

ASTR-91; Short Answer: What is the term applied to the dark, relatively smooth LUNAR plains whose name is derived from the Latin for "sea"?

ANSWER: MARE (singular) or MARIA (plural)

ASTR-91; Short Answer: What is the collection of small rocky bodies, otherwise known as minor planets, 99.8 percent of whose orbits lie between the orbits of Mars and Jupiter?

ANSWER: ASTEROIDS

ASTR-91; Short Answer: Elliptical, Spiral and Irregular are classifications of what type of astronomical systems?

ANSWER: GALAXIES

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ASTR-91; Short Answer: I am a type of star with a relatively low effective temperature (3,000 to 4,000 Kelvins), and have a large radius-about 100 times that of the Sun. What am I?

ANSWER: RED GIANT

ASTR-91; Short Answer: A 5th magnitude star is how many times brighter than an 8th magnitude star?

ANSWER: 15.85 (accept any answer between 15 and 16)

ASTR-91; Multiple Choice: Which of the following statements is true for BOTH Saturn and Jupiter?

- w) both rotate faster than the Earth
- x) both rotate slower than the Earth
- y) only one rotates rapidly while the other rotates very slowly
- z) their periods of rotation are linked to their period of revolution

ANSWER: W -- BOTH ROTATE FASTER THAN THE EARTH

ASTR-91; Multiple Choice: Which of the following is true for ORION? Orion is:

- w) the brightest star in the sky
- x) a constellation
- y) the name given to a NASA spacecraft
- z) an asteroid

ANSWER: X -- A CONSTELLATION

ASTR-91; Multiple Choice: Which of the following men wrote the book "On the Revolutions of the Heavenly Spheres"?

- w) Kepler
- x) Euclid
- y) Copernicus
- z) Newton

ANSWER: Y -- COPERNICUS

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ASTRONOMY

ASTR-91; Short Answer: What is the name given to the configuration when three celestial bodies are in a line?

ANSWER: SYZYGY (pron: siz-a-je)

ASTR-91; Short Answer: Of the planets that circle the Sun, which planet has the most eccentric orbit?

ANSWER: PLUTO

ASTR-91; Multiple Choice: Which of the following is TRUE for Retrograde motion?
Retrograde motion is:

- w) caused by epicycles
- x) undergone only by superior planets
- y) undergone only by inferior planets
- z) an effect due to the projection of planet orbits onto the sky

ANSWER: Z -- AN EFFECT DUE TO THE PROJECTION OF PLANET ORBITS ONTO THE SKY

ASTR-91; Short Answer: What name was given to the series of two-man U.S. space missions undertaken in the mid 1960's?

ANSWER: GEMINI

ASTR-91; Short Answer: What is formed when a massive star, after reaching supergiant status, explodes?

ANSWER: A SUPERNOVA or TYPE II SUPERNOVA or NEUTRON STAR or BLACK HOLE

ASTR-91; Multiple Choice: Beads of light visible around the rim of the moon at the beginning and end of a total solar eclipse are called:

- w) Lunar Beads
- x) Solar Beads
- y) Baily's Beads
- z) Rim Beads

ANSWER: Y -- BAILY'S BEADS

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ASTR-91; Multiple Choice: Whereas latitude and longitude are the coordinates of places on earth, the coordinates used for star locations are two of the following, choose two.

- w) ascension
- x) right ascension
- y) altitude
- z) declination
- e) polar angle

ANSWER: B and D -- RIGHT ASCENSION AND DECLINATION

ASTR-91; Short Answer: Which planet is usually the brightest in the sky?

ANSWER: VENUS

ASTR-91; Short Answer: What is the last planet Voyager II visited?

ANSWER: NEPTUNE

ASTR-91; Multiple Choice: The 2.7 Kelvin cosmic background radiation is concentrated in the:

- w) radio wavelengths
- x) infrared
- y) visible
- z) ultraviolet

ANSWER: W -- RADIO WAVELENGTHS

ASTR-91; Short Answer: Which planets can never be in opposite direction from the Sun in earth's sky?

ANSWER: VENUS AND MERCURY

ASTR-91; Multiple Choice: If you were watching a star collapsing to form a black hole, the light would disappear because it:

- w) is strongly redshifted
- x) is strongly blueshifted
- y) its color suddenly becomes black
- z) none of the above

ANSWER: W -- IS STRONGLY REDSHIFTED

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ASTRONOMY

ASTR-91; Multiple Choice: In which spectral region is it possible for astronomers to observe through clouds?

- w) visual
- x) radio
- y) ultraviolet
- z) x-ray

ANSWER: X -- RADIO

ASTR-91; Short Answer: The first U.S. planetary probe released since the Challenger accident was launched in October, 1989. What is its name and which planet is its primary and final destination?

ANSWER: GALILEO, JUPITER

ASTR-91; Multiple Choice: The Magellanic Clouds are

- w) irregular galaxies
- x) spiral galaxies
- y) elliptical galaxies
- z) large clouds of gas and dust

ANSWER: W -- IRREGULAR GALAXIES

ASTR-91; Short Answer: The extraterrestrial impact hypothesis of dinosaur extinction is based on finding anomalously high concentrations of a certain element at the geological boundary between the Cretaceous and Tertiary periods. What is the name of this element which was found?

ANSWER: IRIDIUM

ASTR-91: Short Answer: Technically, the reflecting power of an object is defined as the ratio of the radiation reflected from an object to the total amount incident upon the object. What term is used in astronomy to indicate the reflecting power of an object?

ANSWER: ALBEDO

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ASTRONOMY

ASTR-91; Multiple Choice: The VISUAL aurora consists of luminous arcs, rays or bands in the night sky, usually confined to high latitudes and located in the:

- w) troposphere
- x) stratosphere
- y) ozonosphere
- z) ionosphere

ANSWER: Z -- IONOSPHERE

ASTR-91; Multiple Choice: This yellow-white, spectral F-type star is located in the constellation Carina south of the ecliptic. It ranks second in apparent brightness among the stars. Is this star:

- w) Canopus
- x) Alpha Centauri
- y) Castor
- z) Rigel

ANSWER: W -- CANOPUS

ASTR-91; Short Answer: Name the northern latitude constellation that is easily recognized by 5 bright stars forming an irregular "W", some observers seeing not only a W but also a chair. One of the brightest novae on record appeared in this constellation in 1572.

ANSWER: CASSIOPEIA (pron: cass-e-o-pe-yw)

ASTR-91; Multiple Choice: When two heavenly bodies occupy the same longitude, the bodies are said to be in:

- w) sympathy
- x) conjunction
- y) parallel
- z) series

ANSWER: X -- CONJUNCTION

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ASTRONOMY

ASTR-91; Multiple Choice: The study of the origin and evolution of the universe is known as:

- w) tomography
- x) cystoscopy
- y) cryology
- z) cosmology

ANSWER: D -- COSMOLOGY

ASTR-91; Short Answer: Penzias and Wilson made what famous discovery which supported the idea that the universe was created by a "big Bang".

ANSWER: BACKGROUND RADIATION RESULTING FROM THE BIG BANG
or PRIMORDIAL FIREBALL RADIATION
or 3 K RADIATION

ASTR-91; Short Answer: Name the English astronomer and professor at Cambridge University who determined the orbit of the then unknown planet Neptune.

ANSWER: (JOHN C.) ADAMS

ASTR-91; Short Answer: Name the two constellations that make up the famous "Great Square of Pegasus".

ANSWER: PEGASUS, ANDROMEDA

ASTR-91; Short Answer: This allotrope of oxygen is formed in the upper atmosphere by the action of ultraviolet radiation from the sun. Name it.

ANSWER: OZONE

ASTR-91; Multiple Choice: What percentage of the Sun's mass has been converted to energy?

- w) 50%
- x) 1%
- y) 2%
- z) .001% (read: one-thousandth of a percent)

ANSWER: Z -- .001%

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ASTRONOMY

ASTR-91; Multiple Choice: According to Kepler's Laws, all orbits of the planets are:

- w) ellipses
- x) parabolas
- y) hyperbolas
- z) square

ANSWER: W -- ELLIPSES

ASTR-91; Multiple Choice: According to Kepler's Laws, the cube of the mean distance of a planet from the sun is proportional to the:

- w) area that is swept out
- x) cube of the period
- y) square of the period
- z) fourth power of the mean distance

ANSWER: Y -- SQUARE OF THE PERIOD

ASTR-91; Multiple Choice: What type of visible star is the coolest?

- w) O (pron: oh)
- x) A
- y) G
- z) M

ANSWER: Z -- M

ASTR-91; Multiple Choice: Which type of star is maintained by the pressure of an electron gas?

- w) Main Sequence Star
- x) White Dwarf
- y) Neutron Star
- z) Black Hole

ANSWER: X -- WHITE DWARF

Science Bowl

ASTRONOMY

ASTR-91; Multiple Choice: In our solar system, which planet has a moon with a mass closest to its own?

- w) Earth
- x) Mars
- y) Jupiter
- z) Pluto

ANSWER: Z -- PLUTO

ASTR-91; Multiple Choice: Io, Europa, Ganymede and Callisto are satellites of what planet?

- w) Jupiter
- x) Saturn
- y) Neptune
- z) Uranus

ANSWER: W -- JUPITER

ASTR-91; Multiple Choice: The universe is estimated to be between ten and twenty billion years old. This estimate is based on the value of which constant?

- w) The mass of the Earth
- x) The speed of light
- y) The Hubble Constant
- z) The mass of the electron

ANSWER: Y -- THE HUBBLE CONSTANT

ASTR-91; Multiple Choice: Which of the following first hypothesized that the Earth orbited the sun?

- w) Alexander the Great
- x) Copernicus
- y) Socrates
- z) Tycho Brahe

ANSWER: X -- COPERNICUS

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ASTRONOMY

ASTR-91; Multiple Choice: The LAST manned moon flight was made in what year?

- w) 1971
- x) 1972
- y) 1973
- z) 1974

ANSWER: X -- 1972

ASTR-91; Multiple Choice: The cosmic background radiation, a remnant of the Big Bang, is at what temperature?

- w) 100K
- x) 0K
- y) 5.3K
- z) 2.7K

ANSWER: Z -- 2.7K

ASTR-91; Short Answer: Name the outer boundary of the sun's magnetic field?

ANSWER: HELIOPAUSE

ASTR-91; Short Answer: Superbubbles and chimneys are both galactic structures theorized to result from what explosive phenomena?

ANSWER: SUPERNOVAS or NOVAS

ASTR-91; Short Answer: Mercury's year lasts how many Mercury sidereal days?

ANSWER: ONE AND ONE-HALF

ASTR-92; Multiple Choice: A planet is said to be at aphelion when it is:

- w) closest to the sun
- x) farthest from the sun
- y) at it's highest point above the ecliptic
- z) at it's lowest point below the ecliptic

ANSWER: X -- FARTHEST FROM THE SUN

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ASTRONOMY

ASTR-92; Multiple Choice: At any time we may describe the position of an inferior planet by the angle it makes with the sun as seen from the earth. This angle is called the:

- w) ecliptic (pron: eh-klip-tik)
- x) epicycle
- y) elongation
- z) proxima

ANSWER: Y -- ELONGATION

ASTR-92; Multiple Choice: Which of the following planets has the greatest eccentricity?

- w) Pluto
- x) Jupiter
- y) Mars
- z) Mercury

ANSWER: W -- PLUTO

ASTR-92; Short Answer: Phobos and Deimos (pron: DEE-mos) are moons that orbit which planet?

ANSWER: MARS

ASTR-92; Multiple Choice: The largest moon in our solar system has an atmosphere that is denser than the atmosphere of Mars. The name of this moon is:

- w) Titan
- x) Ganymede
- y) Triton
- z) Io (pron: I - O)

ANSWER: W -- TITAN

ASTR-92; Short Answer: The two main radiation belts that surround the earth are known by what name?

ANSWER: VAN ALLEN BELTS

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ASTRONOMY

ASTR-92; Multiple Choice: On which of the following planets would the sun rise in the west?

- w) Saturn
- x) Pluto
- y) Mercury
- z) Venus

ANSWER: Z -- VENUS

ASTR-92; Multiple Choice: Which planet seems to be turned on its side with an axis tilt of 98 degrees?

- w) Uranus
- x) Pluto
- y) Neptune
- z) Saturn

ANSWER: W -- URANUS

ASTR-92; Short Answer: The planet Neptune was found by studying the deviations in another planet's orbit. Name the other planet discovered in this fashion.

ANSWER: URANUS

ASTR-92; Multiple Choice: The angle that the full moon takes up in the night sky is equal to which of the following values?

- w) 1/8 degree
- x) 1/2 degrees
- y) 1 degree
- z) 2 degrees

ANSWER: X -- 1/2 DEGREE

ASTR-92; Multiple Choice: The period from one full moon to the next is:

- w) 30.3 days
- x) 30 days
- y) 29.5 days
- z) 28 days

ANSWER: Y -- 29.5 DAYS

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ASTR-92; Multiple Choice: When a superior planet is at opposition it is making an angle of how many degrees with the sun?

- w) 0 degrees
- x) 45 degrees
- y) 90 degrees
- z) 180 degrees

ANSWER: Z -- 180 DEGREES

ASTR-92; Multiple Choice: The word Albedo (pron: al-BEE-doe) refers to which of the following?

- w) The wobbling motion of a planet
- x) The amount of light a planet reflects
- y) The phase changes of a planet
- z) The brightness of a star

ANSWER: X -- THE AMOUNT OF LIGHT THE PLANET REFLECTS

ASTR-92; Multiple Choice: Galileo discovered something about Venus with his telescope that shook the old theories. Which of the following was Galileo's discovery?

- w) Venus was covered in clouds
- x) Venus had phases like the moon
- y) Venus' surface was similar to the earth's
- z) Venus had retrograde motion

ANSWER: X -- VENUS HAD PHASES LIKE THE MOON

ASTR-92; Multiple Choice: Cassini's division is described by which of the following?

- w) A break in the rings of Saturn
- x) A break in the clouds of Jupiter
- y) The distance between the first two moons of Jupiter
- z) The distance between the Van Allen belts

ANSWER: W -- A BREAK IN THE RINGS OF SATURN

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ASTRONOMY

ASTR-92; Short Answer: The law that says that all planets orbit the sun in elliptical orbits is which of Kepler's three laws?

ANSWER: FIRST

ASTR-92; Short Answer: Name the astronomer who discovered that Mars orbits the sun in an elliptical orbit.

ANSWER: KEPLER

ASTR-92; Multiple Choice: Name the phase that the moon is in for each type of eclipse, lunar and solar:

- w) Full moon for both phases
- x) New moon for both phases
- y) Full moon for lunar and new moon for solar
- z) New moon for lunar and full moon for solar

ANSWER: Y -- FULL MOON FOR LUNAR AND NEW MOON FOR SOLAR

ASTR-92; Multiple Choice: The orbital plane of the moon is how many degrees inclined from the ecliptic?

- w) 15 degrees
- x) 10 degrees
- y) 5 degrees
- z) 0 degrees

ANSWER: Y -- 5 DEGREES

ASTR-92; Short Answer: Which JOVIAN planet rotates slower than the earth?

ANSWER: NONE

ASTR-92; Short Answer: Neptune is closest in SIZE to which planet?

ANSWER: URANUS

ASTR-92; Short Answer: Is a sunspot hotter, cooler, or about the same temperature as the region around it?

ANSWER: COOLER

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ASTRONOMY

ASTR-92; Multiple Choice: In the lowest level of the photosphere of the Sun, the temperature is:

- w) 1,000 degrees Kelvin
- x) 6,000 degrees Kelvin
- y) 10,000 degrees Kelvin
- z) 13,000 degrees Kelvin

ANSWER: X -- 6,000 DEGREES KELVIN

ASTR-92; Multiple Choice: A Galactic year is the length of time that it takes our sun to orbit the galaxy. In Earth years, how long is a Galactic year?

- w) 100 million years
- x) 230 million years
- y) 620 million years
- z) 940 million years

ANSWER: X -- 230 MILLION YEARS

ASTR-92; Multiple Choice: A first magnitude star is how many times brighter than a second magnitude star?

- w) 2.5
- x) 7.3
- y) 10.0
- z) 12.0

ANSWER: W -- 2.5

ASTR-92; Short Answer: What is the name of the star that is the BRIGHTEST in the sky?

ANSWER: SIRIUS

ASTR-92; Multiple Choice: Which of the following constellations has more bright stars than any other constellation?

- w) Big Dipper
- x) Cassiopeia
- y) Orion
- z) Scorpion

ANSWER: Y -- ORION

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ASTRONOMY

ASTR-92; Multiple Choice: A line through the three stars in Orion's belt points toward which one of the following stars?

- w) Mizor
- x) Polaris
- y) Sirius
- z) Rigel

ANSWER: Y -- SIRIUS

ASTR-92; Multiple Choice: A pulsar is actually a:

- w) black hole
- x) white dwarf
- y) red giant
- z) neutron star

ANSWER: Z -- NEUTRON STAR

ASTR-92; Multiple Choice: In the Milky Way there are approximately

- w) 2 million stars
- x) 100 million stars
- y) 400 million stars
- z) 200 billion stars.

ANSWER: Z -- 200 BILLION STARS

ASTR-92; Multiple Choice: Which of the following words best describes the shape of our galaxy?

- w) spherical
- x) elliptical
- y) spiral
- z) barred-spiral

ANSWER: Y -- SPIRAL

ASTR-92; Short Answer: What is the name of the star CLOSEST to our sun?

ANSWER: PROXIMA CENTAURI

Science Bowl

ASTRONOMY

ASTR-92; Multiple Choice: On February 9, 1991, ROSAT, an orbiting observatory, finished the first ever all-sky survey of:

- w) radio waves.
- x) infrared radiation.
- y) ultraviolet radiation.
- z) x-rays.

ANSWER: Z -- X-RAYS

ASTR-92; Short Answer: On what planet does a "year" last only 88 days?

ANSWER: MERCURY

ASTR-92; Short Answer: The Asteroid Belt is between the orbits of which two planets?

ANSWER: MARS AND JUPITER

ASTR-92; Multiple Choice: The ring nebula is an example of a planetary nebula. It is:

- w) a ring of planets circling a star.
- x) an expanding ring of gas released from a dying star.
- y) a contracting ring of gas and dust falling circling into a massive object.
- z) a ring of stars in a circular orbit.

ANSWER: X -- AN EXPANDING RING OF GAS RELEASED FROM A DYING STAR

ASTR-92; Short Answer: After what geophysical occurrence might you see Bishop's Ring around the Sun?

ANSWER: VOLCANIC ERUPTION

ASTR-92; Multiple Choice: A black hole with the mass of the earth would be the size of:

- w) the Sun
- x) the Moon
- y) a bowling ball
- z) a marble

ANSWER: Z -- A MARBLE

Science Bowl

ASTRONOMY

ASTR-92; Short Answer: How many people have set foot on the Moon?

ANSWER: TWELVE

ASTR-92; Short Answer: How many MANNED moon landings have there been?

ANSWER: SIX

ASTR-92; Short Answer: Which planets are never visible at midnight?

ANSWER: MERCURY AND VENUS

ASTR-92; Multiple Choice: Whose paradox asks why the sky is not ablaze with starlight if the universe is infinite in extent and uniformly filled with stars?

- w) Olber's
- x) Greigheim's
- y) Schuller's
- z) Miller's

ANSWER: W -- OLBER'S

ASTR-92; Short Answer: On one of the moon landings astronauts left an object on the moon. Scientists periodically bounce a laser beam off of this object to measure the distance between the earth and the moon. What is this object?

ANSWER: MIRROR

ASTR-92; Short Answer: What are Schmidt, Cassegrainian, and Galilean examples of?

ANSWER: TELESCOPES

ASTR-92; Short Answer: How large of an angle is the tilt of the Earth's spin axis from the normal to the ecliptic plane?

ANSWER: 23 AND 1/2 DEGREES

ASTR-92; Short Answer: What are the two bright spots of light on opposite sides of a halo around the sun called?

ANSWER: SUN DOGS

Science Bowl

ASTRONOMY

ASTR-92; Short Answer: What was most significant about the Apollo 11 flight?

ANSWER: IT WAS THE FIRST MANNED LANDING ON THE MOON

ASTR-92; Short Answer: What are the Geminids (pron: JEM-in-ids), the Perseids (pron: PER-see-ids), and the Leonids (pron: LEE-o-nids)?

ANSWER: METEOR SHOWERS

ASTR-92; Short Answer: Laika, the first living creature to orbit the earth was what type of animal?

ANSWER: DOG

ASTR-92; Multiple Choice: Most stars are cooler than the sun. These stars, the planets, interstellar clouds and star-forming regions emit most of their radiant energy in the:

- w) visible
- x) x-ray region
- y) ultraviolet
- z) infrared

ANSWER: Z -- INFRARED

ASTR-92; Short Answer: If the DIAMETER of a reflector's objective mirror is doubled, how many times as great is its light-gathering power?

ANSWER: 4 TIMES

ASTR-92; Multiple Choice: Astronomers use cepheids principally as measures of what? Is it:

- w) size
- x) speed
- y) chemical composition
- z) distance

ANSWER: Z -- DISTANCE

ASTR-92; Short Answer: What is the name of the class that the andromeda Galaxy belongs to?

ANSWER: SPIRAL

Science Bowl

ASTRONOMY

ASTR-92; Multiple Choice: Where are most asteroids located? Is it between:

- w) Jupiter and Saturn
- x) Mars and Venus
- y) Earth and Mars
- z) Mars and Jupiter

ANSWER: Z -- MARS AND JUPITER

ASTR-92; Short Answer: What was the year of the first lunar landing by man ?

ANSWER: 1969

ASTR-92; Short Answer: What is the Latin name for the lunar seas?

ANSWER: MARIA

ASTR-92; Multiple Choice: Of the following phases of the moon, which is the one at which a spring tide occurs? Is it

- w) new
- x) new gibbous
- y) first quarter
- z) new crescent

ANSWER: W -- NEW

ASTR-92; Short Answer: I am one of two stars known as the Pointers. My fellow star is Merak (MAIR-ak). Which star am I?

ANSWER: DUBHE (pron: DOO-be)

ASTR-92; Short Answer: This is a question for you budding young astronomers. What is the sidereal period of the moon?

ANSWER: 27 AND 1/3 DAYS

ASTR-92; Short Answer: "The Swan" is the English name for this constellation. Give me the Latin name by which this constellation is known.

ANSWER: CYGNUS

Science Bowl

ASTRONOMY

ASTR-92; True-False: A white dwarf has a mass of roughly one solar mass but a size of about:
w) a basketball
x) a car
y) Lake Michigan
z) the Earth.

ANSWER: Z -- THE EARTH

ASTR-92; Short Answer: Sirius was identified as a binary star long before its small companion was seen. What kind of star is the small companion of this binary system?

ANSWER: WHITE DWARF

ASTR-92; Multiple Choice: Which of the following can be used to see through Venus's clouds?
w) refracting telescopes
x) radar
y) x-rays
z) ultraviolet

ANSWER: X -- RADAR

ASTR-92; Short Answer: Name the Chicago area astronaut that drove the Lunar Rover during the Apollo 17 mission to the moon? A space center is named after this astronaut at Triton College in River Grove.

ANSWER: (EUGENE) CERNAN

ASTR-92; Short Answer: What is the type of reflecting telescope in which the light focused by the primary mirror is intercepted short of focal point and refocused by a secondary mirror through a hole in the center of the primary mirror?

ANSWER: CASSEGRAIN OR CASSEGRAINIAN

ASTR-92; Short Answer: The only supernova explosion in modern times visible in the sky to the naked eye became visible in which year?

ANSWER: 1987 (It is called 1987w)

Science Bowl

ASTRONOMY

ASTR-92; Short Answer: To within 5% what fraction, by mass, of the observable matter in our universe is helium?

ANSWER: 24% (accept answers between 19% and 29%)

ASTR-92; Short Answer: What is the source of energy in a supernova explosion? (Name or describe the force).

ANSWER: GRAVITATION (Gravitational collapse)

ASTR-92; Short Answer: Give 5 year when Pluto was discovered.

ANSWER: 1930

ASTR-92; Multiple Choice: Primary cosmic radiation is characterized by:

- w) an intensity which is essentially constant in time
- x) isotropic in space
- y) very energetic particles
- z) all of the above.

ANSWER: Z -- ALL OF THE ABOVE

ASTR-92; Multiple Choice: Globular clusters in our galaxy are primarily found:

- w) in the spiral arms.
- x) distributed throughout the disk including regions between the spiral arms.
- y) in the bulge at the center of our galaxy.
- z) in the halo of our galaxy.

ANSWER: Z -- IN THE HALO OF OUR GALAXY.

ASTR-92; Multiple Choice: The phenomenon that causes the Moon's rotation about it's own axis to be equal to the Moon's period of revolution about the Earth is called:

- w) Haner Effect
- x) Landow Effect
- y) Orbital Synchronization
- z) Tidal Friction

ANSWER: Z -- TIDAL FRICTION

Science Bowl

ASTRONOMY

ASTR-92; Multiple Choice: The Sun rotates about it's own axis approximately:

- w) once every 60 minutes.
- x) once every 24 hours.
- y) once every 365 days.
- z) varies with solar latitude.

ANSWER: Z -- VARIES WITH SOLAR LATITUDE.

ASTR-92; Multiple Choice: PRESENTLY, what is the farthest planet from the sun?

- w) Pluto
- x) Neptune
- y) Uranus
- z) None of the above

ANSWER: X -- NEPTUNE

ASTR-92; Multiple Choice: Andromeda, the nearest galaxy which is similar to the Milky Way, is how far from the Earth? Is it:

- w) 200,000 light years
- x) 2,000,000 light years
- y) 20,000,000 light years
- z) 200,000,000 light years

ANSWER: X -- 2,000,000 LIGHT YEARS

ASTR-92; Multiple Choice: The angular position of an object measured from a fixed point along the horizon is its:

- w) azimuth (pron: AZ-i-myuth)
- x) apogee (pron: AP-a-jee)
- y) zenith
- z) declination

ANSWER: W -- AZIMUTH

Science Bowl

ASTRONOMY

ASTR-92; Multiple Choice: The precession of the Earth refers to the:

- w) change from night to day.
- x) Earth's motion around the sun.
- y) change in orientation of the Earth's axis.
- z) effect of the moon on the Earth's orbit.

ANSWER: Y -- CHANGE IN ORIENTATION OF THE EARTH'S AXIS.

ASTR-92; Short Answer: Algol (pron: AL-gall), the Demon star, is a binary star whose larger component revolves around and regularly eclipses the smaller, brighter star causing periodic changes in brightness. The constellation that Algol is in is also noted for meteor showers that appear annually in August. Name the constellation.

ANSWER: PERSEUS (pron: PER-see-us)

ASTR-92; Short Answer: The term "Parsec", a unit of measure for interstellar space, is a contraction of what two words?

ANSWER: PARALLAX SECOND

ASTR-92; Multiple Choice: The angular position of the sun at solar noon with respect to the plane of the equator is the definition of:

- w) index of refraction
- x) solar azimuth angle (pron: AZ-i-muth)
- y) latitude
- z) solar declination angle

ANSWER: Z -- SOLAR DECLINATION ANGLE

ASTR-92; Multiple Choice: Which of the following men was the first to make systematic use of a telescope in astronomy?

- w) Copernicus
- x) Tycho Brahe
- y) Kepler
- z) Galileo

ANSWER: D -- GALILEO

Science Bowl

ASTRONOMY

ASTR-92; Multiple Choice: The Magellanic cloud is a:

- w) nebula
- x) galaxy
- y) super nova remnant
- z) star cluster

ANSWER: X -- GALAXY

ASTR-93; Short Answer: The largest circular storm in our solar system is on the surface of which planet?

ANSWER: JUPITER

ASTR-93; Multiple Choice: The comet known as Halley's Comet has an average period of:

- w) 56 years
- x) 66 years
- y) 76 years
- z) 86 years

ANSWER: Y -- 76 YEARS

ASTR-93; Multiple Choice: Which one of the following planets has no moons?

- w) Mars
- x) Neptune
- y) Venus
- z) Jupiter

ANSWER: Y -- VENUS

ASTR-93; Short Answer: Which planet has the shortest year?

ANSWER: MERCURY

ASTR-93; Multiple Choice: In kilometers, the earth's average distance from the sun is roughly which of the following distances?

- w) 250 million
- x) 91 million
- y) 150 million
- z) 350 million

ANSWER: Y -- 150 MILLION

Science Bowl

ASTRONOMY

ASTR-93; Multiple Choice: The gravity on the moon is what fraction of the gravity on the earth?

- w) $1/3$
- x) $2/3$
- y) $1/6$
- z) $1/10$

ANSWER: Y -- $1/6$

ASTR-93; Multiple Choice: The rocks that enter the earth's atmosphere and blaze a trail all the way to the ground and do not burn up completely are known as:

- w) meteorites
- x) meteors
- y) asteroids
- z) none of these

ANSWER: W -- METEORITES

ASTR-93; Multiple Choice: 95% of the Martian atmosphere is composed of what substance?

- w) Carbon dioxide
- x) Nitrogen
- y) Argon
- z) Carbon monoxide

ANSWER: W -- CARBON DIOXIDE

ASTR-93; Short Answer: How many of Jupiter's moons did Galileo see with his first telescope?

ANSWER: FOUR

ASTR-93; Short Answer: What is the definition of one Astronomical Unit?

ANSWER: IT IS THE DISTANCE FROM THE SUN TO THE EARTH.
(Accept AVERAGE DISTANCE or AVERAGE RADIUS or RADIUS OF EARTH'S ORBIT)

Science Bowl

ASTRONOMY

ASTR-93; Multiple Choice: What is the motion called when a planet seems to be moving westward in the sky?

- w) Retrograde
- x) Parallax
- y) Opcentric
- z) Reverse parallax

ANSWER: W -- RETROGRADE

ASTR-93; Short Answer: In the Copernican system, what is the shape of the planets' orbits?

ANSWER: CIRCLE

ASTR-93; Multiple Choice: With which one of the following astronomical objects are meteor showers associated?

- w) Asteroids
- x) Comets
- y) Planets
- z) None of the above

ANSWER: X -- COMETS

ASTR-93; Multiple Choice: In what year did Galileo first use an optical telescope to study the moon?

- w) 1492
- x) 1611
- y) 1212
- z) 1743

ANSWER: B-- 1611

ASTR-93; Multiple Choice: A device which would not work on the Moon is:

- w) thermometer
- x) siphon
- y) spectrometer
- z) spring balance

ANSWER: X -- SIPHON

Science Bowl

ASTRONOMY

ASTR-93; Short Answer: Where is the Great Red Spot?

ANSWER: JUPITER

ASTR-93; Short Answer: What astronomical event made the headlines in 1986?

ANSWER: HALLEY'S COMET

ASTR-93; Short Answer: What celestial body is known for its 11 year cycle?

ANSWER: SUN

ASTR-93; Short Answer: What are Callisto and Ganymede? (pronounced Call-IS-toe and GAN-ee-meaz)

ANSWER: TWO OF JUPITER'S MOONS

ASTR-93; Short Answer: What feature do only Jupiter, Saturn, Neptune and Uranus have in common?

ANSWER: RINGS

ASTR-93; Multiple Choice: The size of the average meteor is about the size of which of the following objects?

- w) a grain of sand.
- x) a baseball
- y) a basket ball
- z) a car

ANSWER: W -- A GRAIN OF SAND

ASTR-93; Short Answer: When could you see Bailey's Beads?

ANSWER: DURING A TOTAL SOLAR ECLIPSE

Science Bowl

ASTRONOMY

ASTR-93; Multiple Choice: Geocentric means around:

- w) Jupiter
- x) the Earth
- y) the Moon
- z) the Sun

ANSWER: X -- THE EARTH

ASTR-93; Short Answer: How many moons does Mars have?

ANSWER: TWO

ASTR-93; Short Answer: During what phase of the Moon can a total visual eclipse of the Moon occur?

ANSWER: FULL MOON

ASTR-93; Short Answer: What is the more common name for the aurora borealis?

ANSWER: NORTHERN LIGHTS

ASTR-93; Short Answer: Which planet is the Earth's twin size-wise?

ANSWER: VENUS

ASTR-93; Short Answer: Which THREE planets have moons larger than Mercury?

ANSWER: SATURN, JUPITER AND NEPTUNE

ASTR-93; Short Answer: What belts are composed of charged particles surrounding the Earth?

ANSWER: VAN ALLEN BELTS

ASTR-93; Short Answer: Which two planets have overlapping orbits?

ANSWER: NEPTUNE AND PLUTO

ASTR-93; Short Answer: What are "cool" areas on the surface of the Sun called?

ANSWER: SUN SPOTS

Science Bowl

ASTRONOMY

ASTR-93; Short Answer: Which is the only moon in the solar system with a substantial atmosphere?

ANSWER: SATURN'S TITAN

ASTR-93; True-False: The moon is denser than the earth.

ANSWER: FALSE

ASTR-93; Multiple Choice: A comet's apparent size does which of the following as the comet gets closer to the Sun?

- w) decrease
- x) remain the same
- y) increase

ANSWER: Y -- INCREASE

ASTR-93; Multiple Choice: The Phythagoreans appear to have been the first to have taught that the Earth is:

- w) at the center of the Universe.
- x) spherical in shape.
- y) orbits around the sun.
- z) flat with sharp edges.

ANSWER: X -- SPHERICAL IN SHAPE.

ASTR-93; Multiple Choice: The light-gathering power of a reflecting telescope depends on which of the following?

- w) the area of its objective mirror
- x) focal length of its eyepiece
- y) focal length of its objective mirror
- z) the ratio of the focal lengths of objective and eyepiece

ANSWER: W -- THE AREA OF ITS OBJECTIVE MIRROR

ASTR-93; Short Answer: Who was the first individual to observe the phases of Venus? He observed Venus' phases with a telescope that he had built.

ANSWER: GALILEO

Science Bowl

ASTRONOMY

ASTR-93; Multiple Choice: Who first used Tycho Brahe's observational data on the planet Mars to determine that Mars actually traversed an elliptical orbit, the sun being located at one of the foci?

- w) Kepler
- x) Galileo
- y) Hipparchus
- z) Aristarchus

ANSWER: W -- KEPLER

ASTR-93; True-False: Newton taught that the natural state of motion of a body is one of uniform motion in a circular path.

ANSWER: FALSE (uniform motion in a STRAIGHT line)

ASTR-93; Multiple Choice: Approximately how many times could a beam of light travel around the earth in one second?

- w) 3 times
- x) 7.5 times
- y) 15 times
- z) 25 times

ANSWER: X -- 7.5 TIMES

ASTR-93; Multiple Choice: The diameter of the earth is approximately:

- w) 5,000 kilometers
- x) 13,000 kilometers
- y) 18,000 kilometers
- z) 25,000 kilometers

ANSWER: X -- 13,000 KILOMETERS

ASTR-93; Multiple Choice: The average density of the earth is approximately:

- w) half the density of water
- x) twice the density of water
- y) five and a half times the density of water.
- z) ten times the density of water

ANSWER: Y -- FIVE AND A HALF TIMES THE DENSITY OF WATER

Science Bowl

ASTRONOMY

ASTR-93; Short Answer: The earth's motion around the sun causes relatively nearby stars to shift against the background of the more distant fixed stars. What term is used to describe this phenomenon.

ANSWER: PARALLAX

ASTR-93; Short Answer: What name is given to the situation where the sun crosses the celestial equator around March 21?

ANSWER: VERNAL EQUINOX

ASTR-93; Multiple Choice: Of the following colors, which is bent least in passing through a prism?

- w) orange
- x) violet
- y) green
- z) red

ANSWER: Z -- RED

ASTR-93; Multiple Choice: In a reflecting telescope where in the tube is the objective mirror placed?

- w) the top to the tube
- x) the middle of the tube
- y) the bottom of the tube
- z) the side of the tube

ANSWER: Y -- THE BOTTOM OF THE TUBE

ASTR-93; Short Answer: The diameter of the disk of our galaxy, within a factor of two, is how many light years?

ANSWER: 100,000 LIGHT-YEARS (ACCEPT 50,000 TO 200,000)

ASTR-93; Short Answer: What is the principal source of a young star's energy?

ANSWER: FUSION OF HYDROGEN TO HELIUM

Science Bowl

ASTRONOMY

ASTR-93; Multiple Choice: What is the approximate age of our sun?

- w) 1 billion years
- x) 2 billion years
- y) 5 billion years
- z) 20 billion years

ANSWER: Y -- 5 BILLION YEARS

ASTR-93; Multiple Choice: What does it mean when someone says that comets have eccentric orbits? Does it mean

- w) they have open orbits
- x) they have nearly circular orbits
- y) their orbits are unpredictable
- z) the sun is far from the foci of their orbits

ANSWER: Z -- THE SUN IS FAR FROM THE FOCI OF THEIR ORBITS

ASTR-93; Multiple Choice: Which of the following planets has the lowest density?

- w) Mercury
- x) Venus
- y) Saturn
- z) Mars

ANSWER: Y -- SATURN

ASTR-93; Short Answer: What planet comes closest to the Earth?

ANSWER: MARS

ASTR-93; Multiple Choice: What causes the gas tail of a comet to always point away from the sun?

- w) solar wind
- x) air pressure
- y) centrifugal force
- z) gravity

ANSWER: W -- SOLAR WIND

Science Bowl

ASTRONOMY

ASTR-93; Multiple Choice: What are Saturn's rings composed of?

- w) completely connected solid masses
- x) billions of tiny solid particles
- y) mixtures of gases
- z) highly reflective cosmic clouds

ANSWER: X -- BILLIONS OF TINY SOLID PARTICLES

ASTR-93; True-False: Canals have been photographed on Mars by recent space probes.

ANSWER: FALSE

ASTR-93; Multiple Choice: Of the following, which is the only planet which CANNOT be seen with the unaided eye?

- w) Jupiter
- x) Mars
- y) Neptune
- z) Saturn

ANSWER: Y -- NEPTUNE

ASTR-93; Multiple Choice: Accretion is:

- w) the gradual accumulation of matter in one location usually due to gravity.
- x) the process of moon formation for planets.
- y) the process of matter accumulation due to centripetal force.
- z) the disintegration of matter.

ANSWER: W -- THE GRADUAL ACCUMULATION OF MATTER IN ONE LOCATION USUALLY DUE TO GRAVITY.

ASTR-93; Multiple Choice: If we look at a galaxy that is moving AWAY from us, we find that the wavelengths of light coming from this galaxy are:

- w) lengthened
- x) shortened
- y) unchanged

ANSWER: W -- LENGTHENED

Science Bowl

ASTRONOMY

ASTR-93; Short Answer: Give me the name of the first artificial earth satellite and the year in which it was launched.

ANSWER: SPUTNIK 1957

ASTR-93; Short Answer: The stars Castor and Pollux are the two brightest stars of what constellation?

ANSWER: GEMINI (Gemini the Twins)

ASTR-93; Multiple Choice: The age of the Universe in billions of years is approximately

- w) 500
- x) 3.5
- y) 18
- z) 1000

ANSWER: Y -- 18

ASTR-93; Multiple Choice: The reason we call an astronomical body a black hole is that

- w) it is a huge star which appears black at its center.
- x) its gravity is so high that it absorbs its own photons.
- y) it represents lack of matter in a portion of space.
- z) it is a dead planet.

ANSWER: X -- ITS GRAVITY IS SO HIGH THAT IT ABSORBS ITS OWN PHOTONS

ASTR-93; Multiple Choice: A blue shift means a Doppler shift of light from a(an)

- w) receding star.
- x) blue star.
- y) approaching star.
- z) fixed star.

ANSWER: Y -- APPROACHING STAR

ASTR-93; Multiple Choice: The first and largest asteroid discovered was:

- w) Pallas.
- x) Juno.
- y) Ceres.
- z) Trojan.

ANSWER: Y -- CERES

Science Bowl

ASTRONOMY

ASTR-93; Multiple Choice: Which of the following Saturnian satellites is known to possess an atmosphere?

- w) Tethys
- x) Titan
- y) Dione
- z) Mimas

ANSWER: X -- TITAN

ASTR-93; Multiple Choice: The Crab Nebula consists of the remnants of a supernova which was observed by:

- w) Brahe in 1572.
- x) Kepler and Galileo in 1604.
- y) the Chinese in 1054 A.D.
- z) several ancient civilizations in 236 B.C.

ANSWER: Y -- THE CHINESE IN 1054 A.D.

ASTR-93; Multiple Choice: The atmosphere of Venus contains mostly

- w) oxygen
- x) carbon dioxide
- y) nitrogen
- z) water

ANSWER: X -- CARBON DIOXIDE

ASTR-93; Multiple Choice: What causes a planet to have a magnetic field?

- w) the dynamo effect.
- x) the Doppler effect.
- y) the Photoelectric effect.
- z) its rotation about its sun.

ANSWER: W -- THE DYNAMO EFFECT

Science Bowl

ASTRONOMY

ASTR-93; Multiple Choice: On the celestial sphere, the annual path of the Sun is called

- w) the eclipse path.
- x) ecliptic.
- y) diurnal.
- z) solstice.

ANSWER: X -- ECLIPTIC

ASTR-93; Multiple Choice: The angular distance between a planet and the Sun, as viewed from the Earth, is called

- w) angle of inclination.
- x) elongation.
- y) latitude.
- z) opposition.

ANSWER: X -- ELONGATION

ASTR-93; Multiple Choice: Which of the following has the greatest density?

- w) the sun
- x) Venus
- y) Mars
- z) Jupiter

ANSWER: X -- VENUS

ASTR-93; Multiple Choice: Mercury and Venus are said to be inferior planets because:

- w) they are smaller than the other planets that circle the Sun.
- x) their orbits are slower than the Earth's orbit.
- y) their orbits are faster than the Earth's orbit.
- z) their orbits are inside of the Earth's orbit.

ANSWER: Z -- THEIR ORBITS ARE INSIDE OF THE EARTH'S ORBIT

ASTR-93; Short Answer: What is the name of an important galactic cluster of stars in the Milky Way and commonly known as the Seven Sisters?

ANSWER: PLEIADES

Science Bowl

ASTRONOMY

ASTR-93; Short Answer: What is the point at which the orbit of Mercury comes closest to the Sun called?

ANSWER: ITS PERIHELION

ASTR-93; Multiple Choice: Galileo made many astronomical discoveries. Which of the following was NOT one of his discoveries?

- w) the phases of Venus
- x) mountains on Venus
- y) moons of Jupiter
- z) sunspots

ANSWER: X -- MOUNTAINS ON VENUS

ASTR-93; Multiple Choice: Identify the ripples in the overall geometry of space produced by the acceleration of moving objects.

- w) Doppler effect.
- x) granulation.
- y) gravitational waves.
- z) elongation.

ANSWER: Y -- GRAVITATIONAL WAVES

ASTR-93; Multiple Choice: Which one of the following planets has less mass than the Earth?

- w) Jupiter
- x) Saturn
- y) Uranus
- z) Pluto

ANSWER: Z -- PLUTO

ASTR-93; Multiple Choice: Which of the following planets is NOT a terrestrial planet?

- w) Earth
- x) Jupiter
- y) Mars
- z) Mercury

ANSWER: X -- JUPITER

Science Bowl

ASTRONOMY

ASTR-93; Multiple Choice: Why do we see lunar eclipses much more often than solar eclipses?

- w) Lunar eclipses occur more often than solar eclipses.
- x) Lunar eclipses last longer than solar eclipses.
- y) The lunar eclipse is visible to much more of the Earth than a solar eclipse.
- z) The moon is closer to the Earth than the sun.

ANSWER: Y -- THE LUNAR ECLIPSE IS VISIBLE TO MUCH MORE OF THE EARTH THAN A SOLAR ECLIPSE.

ASTR-93; Multiple Choice: A starlike object with a very large redshift is a

- w) neutron star.
- x) nova.
- y) quasar.
- z) supernova.

ANSWER: Y -- QUASAR

ASTR-93; Multiple Choice: The apparent magnitude of an object in the sky describes its

- w) size
- x) magnification
- y) brightness
- z) distance

ANSWER: Y -- BRIGHTNESS

ASTR-93; Multiple Choice: The Van Allen belts are:

- w) caused by the refraction of sunlight like rainbows.
- x) charged particles trapped in the Earth's magnetic field.
- y) caused by the reflection of polar snow.
- z) caused by precession.

ANSWER: X -- CHARGED PARTICLES TRAPPED IN THE EARTH'S MAGNETIC FIELD
ASTR-93; Short Answer: What do the two stars at the end of the cup in the Big Dipper point to?

ANSWER: POLARIS or THE NORTH STAR

Science Bowl

ASTRONOMY

ASTR-93; Multiple Choice: A coordinate system based on the ecliptic system is especially useful for the studies of

- w) planets
- x) stars
- y) the Milky Way
- z) galaxies

ANSWER: W -- PLANETS

ASTR-93; Multiple Choice: When originally discovered, how were planets such as Pluto distinguished from the multitude of stars in the sky?

- w) The planets appear to be bigger than stars
- x) The planets are brighter than most stars
- y) The planets move relative to the stars
- z) The planets are close to the ecliptic

ANSWER: C -- THE PLANETS MOVE RELATIVE TO THE STARS

ASTR-93; Multiple Choice: The moon was closer to earth in March 1993 than it has been for a dozen years. This near distance was about

- w) 200,000 miles
- x) 216,000 miles
- y) 231,000 miles
- z) 240,000 miles

ANSWER: X -- 216,000 MILES

ASTR-93; Short Answer: First, identify by name the largest planet; then identify by name the brightest planet in our solar system. If they are the same, give only one name.

ANSWER: JUPITER (largest) AND VENUS (brightest)

ASTR-93; Short Answer: Name the type of variable star which is a red dwarf star and shows rapid and irregular changes in light.

ANSWER: FLARE STAR

Science Bowl

ASTRONOMY

ASTR-93; Short Answer: What happens to a collapsed star that is too massive to be supported by neutron pressure?

ANSWER: IT FORMS A BLACK HOLE

ASTR-93; Multiple Choice: What is the name of the spacecraft that recently used Jupiter's gravitational field to redirect its course toward the Sun's polar regions?

- w) Magellan
- x) Ulysses
- y) Galileo
- z) Challenger

ANSWER: X -- ULYSSES

ASTR-93; Multiple Choice: The mean distance of the earth from the sun in astronomical units is:

- w) 3.7
- x) 10
- y) 1
- z) 101

ANSWER: Y -- 1

ASTR-93; Short Answer: The decreasing pitch of the siren of a receding locomotive has what analog in astronomy?

ANSWER: RED SHIFT

ASTR-93; Multiple Choice: What process produces a star's energy?

- w) hydrogen and oxygen combustion
- x) nuclear fusion
- y) neutron beta decay
- z) nuclear fission

ANSWER: X -- NUCLEAR FUSION

Science Bowl

ASTRONOMY

ASTR-93; Short Answer: In 1920, Albert Michelson measured the diameter of a star using a stellar interferometer. It was the first measurement of the diameter of any star other than the sun. Identify the star.

ANSWER: BETELGEUSE

ASTR-93; Multiple Choice: On which planet can one find the solar system's largest volcano?

- w) Earth
- x) Neptune
- y) Mars
- z) Jupiter

ANSWER: Y -- MARS

ASTR-93; Multiple Choice: What is the most distant object in the sky that the human eye can see without optical instruments?

- w) The Horsehead Nebula
- x) The Andromeda Galaxy
- y) The Sagittarius Constellation
- z) The Aurora Borealis

ANSWER: X -- THE ANDROMEDA GALAXY

ASTR-93; Multiple Choice: Name the planet that has the greatest number of known moons:

- w) Earth
- x) Saturn
- y) Jupiter
- z) Mars

ANSWER: X -- SATURN

ASTR-93; Short Answer: State the common name given to the group of stars also known as Crux Australis.

ANSWER: SOUTHERN CROSS

Science Bowl

ASTRONOMY

ASTR-93; Multiple Choice: The solitary moon of Pluto is named after the boatman of Greek mythology who ferries the dead across the River Styx. Its name is

- w) Erebus
- x) Charon (pronounced kar-un)
- y) Nox
- z) Persephone (pronounced per-seph-o-nee)

ANSWER: X -- CHARON

ASTR-93; Multiple Choice: Which civilization developed and implemented the first solar calendar?

- w) Babylonian
- x) Greek
- y) Egyptian
- z) Aztec

ANSWER: Y -- EGYPTIAN

ASTR-93; Multiple Choice: What is the HOTTEST region of the sun?

- w) The core
- x) The photosphere
- y) The chromosphere
- z) The corona

ANSWER: Z -- THE CORONA

ASTR-93; Multiple Choice: The same side of the moon always faces the Earth because:

- w) the moon is not rotating about its axis.
- x) the moon's motion was fixed at its creation by the laws of inertia.
- y) tidal forces keep the moon's rotation and orbiting motion in sync with each other.
- z) the moon's magnetic poles keep aligned with the Earth's magnetic field.

ANSWER: Y -- TIDAL FORCES KEEP THE MOON'S ROTATION AND ORBITING MOTION IN SYNCH WITH EACH OTHER.

Science Bowl

ASTRONOMY

ASTR-93; Multiple Choice: The resolving power of a telescope depends on the:

- w) focal ratio
- x) diameter of the objective
- y) magnification
- z) focal length

ANSWER: X -- DIAMETER OF THE OBJECTIVE

ASTR-93; Multiple Choice: The determination of stellar parallax is important because it allows the determination of:

- w) mass
- x) diameter
- y) distance
- z) velocity

ANSWER: Y -- DISTANCE

ASTR-93; Short Answer: What one property besides the temperature does the luminosity of a star depend upon?

ANSWER: THE STAR'S AREA OR DIAMETER

ASTR-93; Multiple Choice: The Giotto spacecraft set a new record last July for the closest visit yet to:

- w) the core of a comet
- x) the red spot of Jupiter
- y) an active solar flare
- z) the rings of Saturn

ANSWER: W -- THE CORE OF A COMET

ASTR-93; Short Answer: During 1990 and 1991 the Magellan orbiter mapped the surface of Venus. What technique did it use?

ANSWER: RADAR

Science Bowl

ASTRONOMY

ASTR-93; Multiple Choice: Data from Voyager II indicate that previous estimates of Triton's size were in error. It is now known that Neptune's largest moon is

- w) nearly the size of Mars
- x) half the size of Mercury
- y) twice the size of the Earth's moon
- z) even larger than previously thought

ANSWER: X -- HALF THE SIZE OF MERCURY

ASTR-93; Short Answer: In 1995, the Galileo spacecraft is scheduled to go into orbit about which planet?

ANSWER: JUPITER

ASTR-93; Multiple Choice: On a clear, dark, moonless night, approximately how many stars can be seen with the naked eye?

- w) 300
- x) 1,000
- y) 3,000
- z) 10,000

ANSWER: Y -- 3,000