

Science Bowl Practice Questions - Astronomy

1. 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

2. Short Answer: The rapidly moving stream of charged particles that is being driven away from the sun is known as what?

ANSWER: SOLAR WIND

3. Multiple Choice: The biggest asteroid known is:

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

ANSWER: Y – CERES

4. 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

5. 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

6. 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

7. 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

8. 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)

9. Short Answer: During the period between 1979 and 1998, what is the farthest planet from the sun?

ANSWER: NEPTUNE

10. 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

11. Multiple Choice: The sunspot cycle is:

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

ANSWER: X -- 11 YEARS

12. 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)

13. 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

14. 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

15. Short Answer: Which unlucky Apollo lunar landing was canceled after an oxygen tank exploded?

ANSWER: APOLLO 13

16. Short Answer: What device first proved that Earth rotates on its axis?

ANSWER: FOUCAULT PENDULUM

17. Short Answer: Which is the smallest planet in our solar system?

ANSWER: PLUTO

18. Which planet has a moon almost as big as the planet itself?

ANSWER: PLUTO

19. Short Answer: What distinction is Sally K. Ride known for?

ANSWER: FIRST AMERICAN WOMAN IN SPACE

20. Short Answer: In what year did Neil Armstrong make his historic walk on the Moon?

ANSWER: 1969

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

ANSWER: VENUS

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

ANSWER: PLUTO'S MOON

23. Short Answer: Where in space is Cassini's division?

ANSWER: BETWEEN TWO RINGS OF SATURN

24. Short Answer: Who was the first black American astronaut in space?

ANSWER: (GUION S.) BLUFORD

25. Short Answer: What is the Vostok 1?

ANSWER: THE FIRST MANNED SPACECRAFT

26. 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

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

ANSWER: NITROGEN

28. 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

29. 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

30. Short Answer: What is the star nearest to the sun?

ANSWER: ALPHA CENTAURI or PROXIMA CENTAURI

31. 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

32. Short Answer: What is the name given to very bright meteors or bolides?

ANSWER: FIREBALLS

33. 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

34. Short Answer: What gas is the main component of the atmosphere of Mars?

ANSWER: CARBON DIOXIDE

35. 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

36. 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

37. Short Answer: On which day of the year does the summer solstice usually occur?

ANSWER: JUNE 21

38. Short Answer: When the earth is farthest from the sun, what season is it in the Northern Hemisphere?

ANSWER: SUMMER

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

ANSWER: VENUS AND MERCURY

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

ANSWER: ANDROMEDA

41. 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

42. Short Answer: The brightest star in this constellation is Vega. In which constellation can Vega be found?

ANSWER: LYRA

43. 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

44. 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

45. Short Answer: The Orion Nebula is a good example of what kind of nebula?

ANSWER: EMISSION NEBULA

46. 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

47. 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

48. 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

49. Multiple Choice: Refracting telescopes always contain which one of the following?
- w) mirrors
 - x) lenses
 - y) television systems
 - z) film

ANSWER: X – LENSES

50. 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

51. 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

52. 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)

53. 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

54. Short Answer: Elliptical, Spiral and Irregular are classifications of what type of astronomical systems?

ANSWER: GALAXIES

55. 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

56. 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)

57. 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

58. 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

59. 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

60. Short Answer: What is the name given to the configuration when three celestial bodies are in a line?

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

61. Short Answer: Of the planets that circle the Sun, which planet has the most eccentric orbit?

ANSWER: PLUTO

62. 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

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

ANSWER: GEMINI

64. 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

65. 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

66. 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

67. Short Answer: Which planet is usually the brightest in the sky?

ANSWER: VENUS

68. Short Answer: What is the last planet Voyager II visited?

ANSWER: NEPTUNE

69. 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

70. Short Answer: Which planets can never be in opposite direction from the Sun in earth's sky?

ANSWER: VENUS AND MERCURY

71. 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

72. 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

73. 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

74. 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

75. 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

76. 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

77. 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

78. 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

79. 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)

80. 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

81. 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

82. 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

83. 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

84. Short Answer: Name the two constellations that make up the famous "Great Square of Pegasus".

ANSWER: PEGASUS, ANDROMEDA

85. 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

86. 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%

87. Multiple Choice: According to Kepler's Laws, all orbits of the planets are:

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

ANSWER: W – ELLIPSES

88. 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

89. Multiple Choice: What type of visible star is the coolest?

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

ANSWER: Z – M

90. 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

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

92. Multiple Choice: Io, Europa, Ganymede and Callisto are satellites of what planet?

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

ANSWER: W – JUPITER

93. 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

94. 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

95. Multiple Choice: The LAST manned moon flight was made in what year?

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

ANSWER: X – 1972

96. 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

97. Short Answer: Name the outer boundary of the sun's magnetic field?

ANSWER: HELIOPAUSE

98. Short Answer: Superbubbles and chimneys are both galactic structures theorized to result from what explosive phenomena?

ANSWER: SUPERNOVAS or NOVAS

99. Short Answer: Mercury's year lasts how many Mercury sidereal days?

ANSWER: ONE AND ONE-HALF

100. 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