

Science Bowl Questions – Astronomy, Set 2

1. 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

2. Multiple Choice: Which of the following planets has the greatest eccentricity?

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

ANSWER: W – PLUTO

3. Short Answer: Phobos and Deimos (pron: DEE-mos) are moons that orbit which planet?

ANSWER: MARS

4. 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

5. Short Answer: The two main radiation belts that surround the earth are known by what name?

ANSWER: VAN ALLEN BELTS

6. 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

7. 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

8. 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

9. 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

10. 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

11. 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

12. 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

13. 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

14. 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

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

ANSWER: FIRST

16. Short Answer: Name the astronomer who discovered that Mars orbits the sun in an elliptical orbit.

ANSWER: KEPLER

17. 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

18. 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

19. Short Answer: Which JOVIAN planet rotates slower than the earth?

ANSWER: NONE

20. Short Answer: Neptune is closest in SIZE to which planet?

ANSWER: URANUS

21. Short Answer: Is a sunspot hotter, cooler, or about the same temperature as the region around it?

ANSWER: COOLER

22. 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

23. 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

24. 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

25. Short Answer: What is the name of the star that is the BRIGHTEST in the sky?

ANSWER: SIRIUS

26. 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

27. 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

28. Multiple Choice: A pulsar is actually a:

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

ANSWER: Z -- NEUTRON STAR

29. 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

30. 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

31. Short Answer: What is the name of the star CLOSEST to our sun?

ANSWER: PROXIMA CENTAURI

32. 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

33. Short Answer: On what planet does a "year" last only 88 days?

ANSWER: MERCURY

34. Short Answer: The Asteroid Belt is between the orbits of which two planets?

ANSWER: MARS AND JUPITER

35. 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

36. Short Answer: After what geophysical occurrence might you see Bishop's Ring around the Sun?

ANSWER: VOLCANIC ERUPTION

37. 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

38. Short Answer: How many people have set foot on the Moon?

ANSWER: TWELVE

39. Short Answer: How many MANNED moon landings have there been?

ANSWER: SIX

40. Short Answer: Which planets are never visible at midnight?

ANSWER: MERCURY AND VENUS

41. 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

42. 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

43. Short Answer: What are Schmidt, Cassegrainian, and Galilean examples of?

ANSWER: TELESCOPES

44. 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

45. Short Answer: What are the two bright spots of light on opposite sides of a halo around the sun called?

ANSWER: SUN DOGS

46. Short Answer: What was most significant about the Apollo 11 flight?

ANSWER: IT WAS THE FIRST MANNED LANDING ON THE MOON

47. 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

48. Short Answer: Laika, the first living creature to orbit the earth was what type of animal?

ANSWER: DOG

49. 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

50. 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

51. Multiple Choice: Astronomers use cepheids principally as measures of what? Is it:

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

ANSWER: Z – DISTANCE

52. Short Answer: What is the name of the class that the andromeda Galaxy belongs to?

ANSWER: SPIRAL

53. 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

54. Short Answer: What was the year of the first lunar landing by man ?

ANSWER: 1969

55. Short Answer: What is the Latin name for the lunar seas?

ANSWER: MARIA

56. 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

57. 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)

58. 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

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

ANSWER: CYGNUS

60. 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

61. 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

62. 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

63. 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

64. 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

65. 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)

66. 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%)

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

ANSWER: GRAVITATION (Gravitational collapse)

68. Short Answer: Give 5 year when Pluto was discovered.

ANSWER: 1930

69. 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

70. 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.

71. 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

72. Multiple Choice: The Sun rotates about its 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.

73. 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

74. 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

75. 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

76. 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.

77. 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)

78. Short Answer: The term "Parsec", a unit of measure for interstellar space, is a contraction of what two words?

ANSWER: PARALLAX SECOND

79. 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

80. 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

81. Multiple Choice: The Magellanic cloud is a:

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

ANSWER: X – GALAXY

82. Short Answer: The largest circular storm in our solar system is on the surface of which planet?

ANSWER: JUPITER

83. 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

84. Multiple Choice: Which one of the following planets has no moons?

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

ANSWER: Y – VENUS

85. Short Answer: Which planet has the shortest year?

ANSWER: MERCURY

86. 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

87. 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

88. 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

89. 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

90. Short Answer: How many of Jupiter's moons did Galileo see with his first telescope?

ANSWER: FOUR

91. 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)

92. 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

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

ANSWER: CIRCLE

94. 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

95. 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

96. Multiple Choice: A device which would not work on the Moon is:

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

ANSWER: X – SIPHON

97. Short Answer: Where is the Great Red Spot?

ANSWER: JUPITER

98. Short Answer: What astronomical event made the headlines in 1986?

ANSWER: HALLEY'S COMET

99. Short Answer: What celestial body is known for its 11 year cycle?

ANSWER: SUN

100. Short Answer: What are Callisto and Ganymede? (pronounced Call-IS-toe and GAN-ee-meaz)

ANSWER: TWO OF JUPITER'S MOONS