

FAMILY NAME : _____
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GIVEN NAME : _____
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Signature: _____

ASTRONOMY 4

DeAnza College
Spring 2017

First Midterm Exam

MAKE ALL MARKS DARK AND COMPLETE.

Instructions:

1. On your Parscore sheet (using a #2 pencil):
 - a. Write and fill in the bubbles for your 8-digit ID number. Leave the right-most two columns blank.
 - b. Write and bubble in your name in LastName FirstName form (i.e. family name then given name separated by a space).
 - c. Leave blank: areas for phone number, exam number, and code, and test form.
2. Please print your name and sign your name in the appropriate spaces at the top of this page.
3. **This is a closed-book, closed-notes exam. No reference materials of any kind are to be used during the exam.**
4. Your exam should have five pages (including this one).
Please check to make sure that it does.
5. Mark your answers on this booklet as well as filling in the bubbles on your Parscore sheet.
6. Turn in your Parscore sheet inside your exam booklet.

Good luck!

On your Parscore sheet:

A = A correct answer ("True")

B = An incorrect answer ("False")

A. Which of the following is/are Terrestrial bodies?

- T F 1) Mercury
- T F 2) Pluto
- T F 3) Earth
- T F 4) Earth's Moon

B. Which of the following is/are true about the Sun's motion along the ecliptic?

- T F 5) It moves toward the East through the constellations by some amount per day.
- T F 6) It moves toward the West through the constellations by some amount per day.
- T F 7) It takes about a month to go all the way around once.
- T F 8) Trick question – the Sun doesn't move along the ecliptic, it moves along the celestial equator.

C. In modern astronomy, the constellations are

- T F 9) more than 50 sky regions covering the whole sky.
- T F 10) a small number (less than 10) of well-defined groups of stars in our sky which are close to each other in space (also called "star clusters").
- T F 11) 12 specific regions through which the planets and Moon appear to move in our sky.
- T F 12) used to describe directions in space, but the "pictures" they appear to make are not considered to have any fundamental physical importance.

D. The word "parallax" refers to

- T F 13) seeing an object against the background from different points of view.
- T F 14) the ruler of the universe in Babylonian mythology.
- T F 15) a mathematical computation that was used by the Aztecs to predict eclipses.
- T F 16) the differing pull of gravity on objects of different mass.

E. An Astronomical Unit is

- T F 17) a unit of distance.
- T F 18) a unit of mass.
- T F 19) the average distance from Earth to the Sun.
- T F 20) the mass of the Sun.
- T F 21) any unit which expresses an astronomical quantity.

F. According to Kepler's laws, where is a planet moving fastest in its orbit?

- T F 22) at perihelion
- T F 23) at aphelion
- T F 24) when it's farthest from the Sun
- T F 25) when it's closest to the Sun
- T F 26) Kepler's laws imply that any one planet always moves at the same speed no matter where it is in its orbit.

- G. Which of the following is/are systematically different between Terrestrial and Jovian bodies?
- T F 27) distance from the Sun
 - T F 28) mass
 - T F 29) density
 - T F 30) diameter
- H. If we see a star about ten light years away from us, then
- T F 31) we are seeing it as it was about ten years ago, not as it is right now.
 - T F 32) it is one of the most distant stars from us in the Milky Way.
 - T F 33) it is closer to us than most stars are.
 - T F 34) No star can be ten light years from us, since that would be inside our Solar System.
- I. Which of the following is/are true about the orbital motion of the planets?
- T F 35) They all orbit in the same direction.
 - T F 36) They all orbit in about the same plane.
 - T F 37) Their orbits are all elliptical.
 - T F 38) Their orbits are all perfectly circular.
- ~~J. Which of the following is/are example(s) of "archaeoastronomy"?~~
- ~~T F 39) The Apollo program of Moon landings.~~
 - ~~T F 40) The "Sun Dagger" in New Mexico.~~
 - ~~T F 41) Stonehenge in England.~~
 - ~~T F 42) Newgrange in Ireland.~~
- K. Which of the following is/are example(s) of "angular distance"?
- T F 43) an astronomical unit
 - T F 44) a light year
 - T F 45) a degree
 - T F 46) a minute of arc
- L. Which of the following is/are classes of objects in our solar system?
- T F 47) major planets
 - T F 48) satellites
 - T F 49) asteroids
 - T F 50) Kuiper Belt objects
- M. Which of the following is/are true about motions in the solar system that cause changes in the sky as seen from Earth?
- T F 51) Earth rotates counterclockwise as seen from the North.
 - T F 52) Earth revolves clockwise as seen from the North.
 - T F 53) The Moon revolves counterclockwise as seen from the North.
 - T F 54) The planets revolve clockwise as seen from the North.

N. Which of the following do you live in?

- T F 55) the Andromeda Galaxy.
- T F 56) the Milky Way Galaxy.
- T F 57) the Triangulum Galaxy.
- T F 58) the Virgo Supercluster.

O. Why did Galileo spend the last years of his life under house arrest?

- T F 59) He persisted in saying that the Earth went around the Sun even though the church had told him not to do so.
- T F 60) He implied that people could travel in space by use of witchcraft spells.
- T F 61) The police ruled that heliocentrism was against the law, even though the church had approved of it.
- T F 62) He had robbed several convenience stores.

P. Which of the following is/are true about the terms *rotation* and *revolution*?

- T F 63) *Rotation* means spin on an axis.
- T F 64) *Revolution* means orbiting around something else.
- T F 65) The Earth's *revolution* period is one day.
- T F 66) The two terms mean the same thing.

Q. Which of the following was/were discovered by Galileo using a telescope?

- T F 67) that the Milky Way is made up of a huge number of individual stars
- T F 68) the brightest moons of Jupiter
- T F 69) mountains on the Moon
- T F 70) the phases of Venus

R. According to the "Cosmos" episode about Kepler's life,

- T F 71) Kepler's mother was arrested on charges of witchcraft.
- T F 72) Tycho Brahe's lifestyle and friends annoyed Kepler.
- T F 73) Kepler developed his laws of planetary motion only after Tycho Brahe died.
- T F 74) Kepler's work was motivated by his religious beliefs.

~~S. How does the Greek letter designation of a star give you clues to its location and brightness?~~

- ~~T F 75) It includes the constellation name, so it helps "locate" the star on the celestial sphere.~~
- ~~T F 76) The Greek letter part of the name gives the star's approximate relative brightness in a constellation.~~
- ~~T F 77) Since it includes a star's brightness, it tells us how far away the star is (because faint stars are always farther away than bright ones) thus giving us its exact location in space.~~
- ~~T F 78) The Greek letter designation includes a star's precise eccentricity number which in turn tells us its precise brightness.~~
- ~~T F 79) It doesn't tell us anything about location and brightness, just old Greek myths about the sky.~~

T. Which of the following is/are true about the magnitude system?

- T F 80) A star's magnitude refers to its distance from us.
- T F 81) A star with a lower magnitude number than another one must be closer to us.
- T F 82) A star's magnitude refers to its brightness.
- T F 83) A star with a lower magnitude number than another must be brighter than the other.
- T F 84) The faintest stars that can be seen by the unaided human eye are called first magnitude stars.

U. Who among the following is credited with having made the most precise measurements of planets' positions **without** using a telescope?

- T F 85) Ptolemy
- T F 86) Tycho Brahe
- T F 87) Galileo
- T F 88) Kepler

V. Which of the following is/are in correct size order from smallest to largest?

- T F 89) planet, solar system, galaxy, supercluster
- T F 90) Local Group, Milky Way Galaxy, Virgo Supercluster, Observable Universe
- T F 91) diameters of: Mercury, Earth, Uranus, the Sun
- T F 92) distance from Earth to: Mars, the nearest star (other than the Sun), the center of the Milky Way Galaxy

W. The retrograde motion of Jupiter is accounted for by

- T F 93) its motion along more than one circle according to the geocentric model.
- T F 94) its motion along more than one circle according to the Ptolemaic model.
- T F 95) Earth "catching up" with Jupiter and passing it in orbit according to the heliocentric model.
- T F 96) the fact that Jupiter has a very complicated orbit around the Sun; it doesn't always travel in the same direction.

~~X. What causes the seasons?~~

- ~~T F 97) Earth is closer to the Sun in the summer than it is in the winter.~~
- ~~T F 98) Earth's orbit is elliptical.~~
- ~~T F 99) Earth's axis is tilted relative to a perpendicular to its orbit plane.~~
- ~~T F 100) The Sun gets slightly brighter and dimmer with a one-year period.~~

END OF TEST. PLEASE TURN IN YOUR PARSCORE SHEET INSIDE THIS EXAM BOOKLET.