FAMILY NAME : _____
(Please PRINT!)

GIVEN NAME : _____
(Please PRINT!)

Signature: _____

ASTRONOMY 4

DeAnza College
Spring 2017

Second 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). Don't leave any blank spaces on the left.
   c. Leave blank: areas for phone number, exam number, and code.

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")
You are to mark at least one answer "True" in each lettered question group.

A. What force creates and guides the Sun's surface phenomena?
T F 1) Gravity.
T F 2) Nuclear forces.
T F 3) Magnetism.

B. Why does the Moon show phases during the course of a month?
T F 4) The Earth's shadow falls on the Moon to different degrees as the Moon goes around.
T F 5) The angle between our lines of sight to the Moon and Sun changes and we see differing amounts of reflected sunlight from the Moon.
T F 6) The Moon shines by light reflected from the Earth, so it looks different depending on whether it's day or night on the side of the Earth facing the Moon.

C. What phase(s) of the moon come(s) between Waxing Gibbous and the next Waning Crescent?
T F 7) third quarter.
T F 8) full.
T F 9) waning gibbous.
T F 10) waxing crescent.

D. Which of the following is/are true about the Moon's sidereal and synodic periods?
T F 11) The sidereal period is the time it takes the Moon to go through one cycle of its phases.
T F 12) The synodic period is the same as a "lunation".
T F 13) The synodic period is the time it takes for the Moon to go from one total lunar eclipse to the next total lunar eclipse.
T F 14) The sidereal and synodic periods are the same thing.

E. What conditions are necessary for a lunar or a solar eclipse to occur?
T F 15) A lunar and a solar eclipse can only happen at new moon.
T F 16) A lunar and a solar eclipse can only happen at full moon.
T F 17) A lunar eclipse can only happen at full moon.
T F 18) A solar eclipse can only happen if the Moon passes directly between the Earth and the Sun.

F. What is Pluto?
T F 19) Terrestrial
T F 20) Jovian
T F 21) Neither Terrestrial nor Jovian

G. What is the Solar Nebula Theory?

T F 22) It is the proposal that the Sun's energy comes from a cloud of plasma around it.
T F 23) It is the proposal that the universe formed from a huge explosion.
T F 24) It is the proposal that the planets formed from the same cloud of gas and dust that formed the Sun.
T F 25) It predicts that planet formation is a natural part of star formation and not due to catastrophic events.

H. According to the Solar Nebula theory, how was the solar nebula cleared away?

T F 26) When the sun became luminous enough, the gas and dust were blown away into space.
T F 27) It all eventually became incorporated into planets.
T F 28) It was never cleared away.

I. Which of the following is/are true about the Sun's core?

T F 29) It is made of plasma.
T F 30) It is made primarily of iron.
T F 31) It is where the Sun's energy is generated by hydrogen fusion.
T F 32) It is where coronal mass ejections occur.

J. Which of the following is/are true about the Kepler Space Telescope?

T F 33) It was designed to search for evidence of exoplanets.
T F 34) It was designed to search for evidence of planets orbiting around other stars.
T F 35) It was designed to replace the Hubble Space Telescope.
T F 36) It searched for planets around all stars within a hundred light years of us.

K. Which of the following is/are true about the Earth's shadow?

T F 37) It is responsible for lunar eclipses.
T F 38) The darkest part is called the umbra.
T F 39) The darkest part is called the penumbra.
T F 40) The darkest part is called the umbrella.

L. The Maunder minimum

T F 41) Was a time of several years in which there were very few sunspots.
T F 42) Happened in the 1600s and 1700s.
T F 43) Coincided with the middle of the "little ice age" in Europe and North America.
T F 44) was the lowest number of planetesimals to come inside the orbit of Mars in a month (about 1,329).

M. An "annular eclipse"

T F 45) is an eclipse in which the Moon covers only the central part of the Sun, leaving a ring (or "annulus") of bright light around the Moon's silhouette.
T F 46) occurs once a year.
T F 47) cannot happen if the Moon is at perigee.
T F 48) cannot happen if the Moon is at apogee.

N. Which one(s) of the following describe a situation in which the Moon can be seen in the daytime?

T F 49) first quarter moon at 9 a.m.
T F 50) full moon at noon
T F 51) third quarter moon at 9 a.m.
T F 52) waxing crescent moon just before sunrise.

O. "Helioseismology"

T F 53) is the study of the Sun's influence on earthquakes.
T F 54) can be used to study the interior of the Sun.
T F 55) is the study of vibrations in the photosphere.
T F 56) can be used to study the properties of extra-solar planets.

P. Why can't you see deeper than the photosphere?

T F 57) Because the photosphere is the deepest layer.
T F 58) Because the photosphere and deeper layers are not transparent.
T F 59) Because the photosphere is made up of X-Rays.
T F 60) Trick question – you *can* see deeper than the photosphere.

Q. What evidence can you give that sunspots are magnetic?

T F 61) Their spectra are influenced by the Zeeman effect.
T F 62) They push surrounding ionized gasses away from themselves.
T F 63) They influence the trajectories of metal spacecraft.

R. What is a planetesimal?

T F 64) "Planetesimal" is another word for a satellite (moon) going around a planet.
T F 65) It was a small body that formed from the solar nebula and eventually grew into a proto-planet.
T F 66) It is a disk of dusty material seen in Hubble Space Telescope pictures of nearby stars.
T F 67) "Planetesimal" is another word for particles that escape from the solar system.

S. All of the major planets

T F 68) orbit the Sun in the same direction.
T F 69) are made of rock and metal.
T F 70) orbit in about the same plane as the Sun's equator.

T. Which of the following was/were used in the Kepler project to discover exoplanets?

T F 71) The "wobble" method.
T F 72) The "transit" method.
T F 73) Detecting minute changes in a star's brightness.

U. Which of the following is/are true about the moon?

T F 74) The first quarter moon is highest in the sky at about sunset.
T F 75) The full moon is highest in the sky at about midnight.
T F 76) The third quarter moon rises at about midnight.
T F 77) When the moon rises or sets or is highest in the sky does not depend on its phase.

V. Which of the following is/are true about the Sun's motion along the ecliptic?
T F 78) It moves toward the East through the constellations by some amount per day.
T F 79) It moves toward the West through the constellations by some amount per day.
T F 80) It takes about a month to go all the way around once.
T F 81) Trick question – the Sun doesn't move along the ecliptic, it moves along the celestial equator.

W. According to Kepler's laws, where is a planet moving slowest in its orbit?
T F 82) at perihelion
T F 83) at aphelion
T F 84) when it's farthest from the Sun
T F 85) when it's closest to the Sun
T F 86) Kepler's laws imply that any one planet always moves at the same speed no matter where it is in its orbit.

X. Which of the following is/are example(s) of "archaeoastronomy"?
T F 87) Anything that involves the study of ancient people's astronomical knowledge.
T F 88) Any concept in astronomy that has since been proven wrong.
T F 89) Stonehenge in England.
T F 90) Newgrange in Ireland.

Y. 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 91) Earth rotates counterclockwise as seen from the North.
T F 92) Earth revolves counterclockwise as seen from the North.
T F 93) The Moon revolves counterclockwise as seen from the North.
T F 94) The planets revolve counterclockwise as seen from the North.

Z. Which of the following do you live in?
T F 95) the Solar System.
T F 96) the Milky Way Galaxy.
T F 97) the Local Group.

AA. Which of the following is/are Jovian planets?
T F 98) Jupiter
T F 99) Saturn
T F 100) Uranus

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