

FAMILY NAME : _____
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Signature: _____

ASTRONOMY 4

DeAnza College
Spring 2017

Third 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!

- A. What was the "Magellan" spacecraft?
- T F 1) It was a probe sent to Mercury to photograph its night side.
 - T F 2) It was a probe sent to Mars that dropped the first lander on the planet's surface.
 - T F 3) It was a probe sent to Venus mapped the planet's surface with radar.
 - T F 4) It was a probe sent to Venus that landed on the surface to measure pressure and temperature.
- B. What is the *Messenger* spacecraft?
- T F 5) A satellite orbiting Mercury.
 - T F 6) A probe to map Venus using radar.
 - T F 7) A "rover" in the southern hemisphere of Mars.
- C. Water on Mars
- T F 8) was detected as ice near one of the poles of Mars by the *Phoenix* lander.
 - T F 9) cannot exist as liquid at present due to the very low atmospheric pressure.
 - T F 10) cannot exist as liquid at present because the temperature never gets above freezing anywhere on the planet.
- D. Which of the following is/are found on Mars?
- T F 11) Shield volcanoes larger than any on Earth.
 - T F 12) Dry river beds and flood channels.
 - T F 13) A system of canyons several thousand miles long and up to several miles deep.
 - T F 14) Heavily cratered areas.
- E. Why are some volcanoes on Mars much larger than any on Earth?
- T F 15) Mars is a bigger planet, so its volcanoes are bigger.
 - T F 16) Mars has no plate tectonic motions of its crust.
 - T F 17) Mars has much more active plate tectonics than the Earth does.
- F. According to the program *Is There Life on Mars*, which of the following was/were necessary in order for life to begin?
- T F 18) organic molecules
 - T F 19) phosphoric acid
 - T F 20) liquid water
- G. Which of the following statements about the surface temperature on Venus is/are true?
- T F 21) The temperature is about 900° F
 - T F 22) The high temperature is because of the "runaway greenhouse effect" due to carbon dioxide.
 - T F 23) The temperature is hotter than the surface temperature on Mercury.
- H. Which of the following is/are stages in the development of Terrestrial bodies?
- T F 24) uniformitarianism
 - T F 25) differentiation
 - T F 26) exfoliation
 - T F 27) flooding

- I. What is the importance of the sulfate salts found in some rocks on Mars?
- T F 28) They show that Mars's volcanoes produced the same sulfur-rich lava as Earth's volcanoes do.
 - T F 29) They show that liquid water had to be present or they wouldn't have formed.
 - T F 30) They might have been produced as waste products of microscopic organisms.
 - T F 31) They destroy organic molecules.
- J. Which of the following is/are true about Venus?
- T F 32) Its surface temperature is much hotter than Earth's.
 - T F 33) It rotates very slowly and "backward" (i.e. clockwise as seen from above its north pole.)
 - T F 34) It has "oceans" of liquid methane.
 - T F 35) Winds on its surface are only about four miles per hour, but are very powerful in terms of momentum.
- K. Which of the following is/are among the top three components of the atmosphere of Mars?
- T F 36) Oxygen.
 - T F 37) Carbon dioxide.
 - T F 38) Nitrogen.
 - T F 39) Methane
- L. Comparing the atmospheres of Venus and Earth,
- T F 40) The atmosphere of Venus is more massive than Earth's.
 - T F 41) While the percentages are very different, Venus and the Earth have similar amounts (within a factor of three) of nitrogen in their atmospheres.
 - T F 42) Each has argon as the third-most abundant gas in the atmosphere.
 - T F 43) Venus has significantly more oxygen in its atmosphere than Earth does.
- M. Which of the following is/are Terrestrial bodies?
- T F 44) Venus.
 - T F 45) Mars.
 - T F 46) Mercury.
 - T F 47) Earth's Moon.
- N. All of the major planets,
- T F 48) revolve in the same direction as the Sun spins.
 - T F 49) orbit the Sun in about the same plane as the Sun's equator.
 - T F 50) rotate in the same direction as they orbit the Sun.
 - T F 51) are made primarily of ices of volatile materials.
- O. Which of the following is/are true about the terms *rotation* and *revolution*?
- T F 52) *Rotation* means spin on an axis.
 - T F 53) *Revolution* means orbiting around something else.
 - T F 54) The Earth's *revolution* period is one day.
 - T F 55) The two terms mean the same thing.

- P. Which of the following was/were discovered by Galileo using a telescope?
- T F 56) that the Milky Way is made up of a huge number of individual stars
 - T F 57) the brightest moons of Jupiter
 - T F 58) mountains on the Moon
 - T F 59) the phases of Venus
- Q. The time that it takes the Moon to go through one complete cycle of phases is called its
- T F 60) saros cycle.
 - T F 61) sidereal period
 - T F 62) synodic period
- R. An "annular eclipse"
- T F 63) 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 64) occurs once a year.
 - T F 65) cannot happen if the Moon is at perigee.
 - T F 66) cannot happen if the Moon is at apogee.
- S. Which one of the following is/are among the top three components of the Earth's atmosphere?
- T F 67) oxygen
 - T F 68) carbon dioxide
 - T F 69) nitrogen
 - T F 70) methane
- T. Where are the Caloris Basin and the "Spider"?
- T F 71) Mercury
 - T F 72) Venus
 - T F 73) Mars
- U. What are the clouds of Venus made of?
- T F 74) Water droplets
 - T F 75) Carbon dioxide ice crystals
 - T F 76) Sulfuric acid droplets
- V. Which of the following Terrestrial bodies show evidence of plate tectonics?
- T F 77) Mercury
 - T F 78) Venus
 - T F 79) Earth
 - T F 80) Earth's Moon
- W. We can study the structure of Earth's interior by
- T F 81) drilling into the lower mantle and core and studying samples in laboratory experiments.
 - T F 82) using seismometer records of earthquakes to see how seismic waves are transmitted through the Earth.
 - T F 83) using powerful x-ray and sonogram equipment.

- X. In Earth's atmosphere, most oxygen is the product of
- T F 84) outgassing
 - T F 85) erosion
 - T F 86) interaction of solar ultraviolet with the ozone layer
 - T F 87) photosynthesis
- Y. Referring to the Earth's interior, the statement that "mantle material behaves like a **plastic**"
- T F 88) means that the mantle is made of lightweight, shiny material made from petrochemicals.
 - T F 89) means that the mantle is made of material with the properties of a solid but capable of flowing under pressure.
 - T F 90) is wrong; the mantle is made of mostly iron and nickel.
- Z. How does the large-impact hypothesis explain the moon's lack of iron?
- T F 91) The moon's iron core would have vaporized in the impact and escaped to space.
 - T F 92) The ejected material which became the moon would have been mostly iron-poor mantle material.
 - T F 93) Calculations show that the iron core of the impacting body would have fallen into the Earth and not have been available for subsequent incorporation into the moon.
- AA. What evidence do we have that Mercury has a partially molten, metallic core?
- T F 94) Its density is very high for a body of its size.
 - T F 95) Its magnetic field is stronger than we would expect if its iron core were entirely solid.
 - T F 96) There is no such evidence because Mercury has a solid, rocky core.
- BB. Which of the following is/are among the top three components of the atmosphere of Venus?
- T F 97) Argon.
 - T F 98) Carbon dioxide.
 - T F 99) Nitrogen.
 - T F 100) Methane.

PLEASE TURN IN YOUR PARSCORE **INSIDE** YOUR EXAM BOOKLET.