

FAMILY NAME : \_\_\_\_\_  
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Signature: \_\_\_\_\_

## ASTRONOMY 4

DeAnza College  
Winter 2019

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 two 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 nitrogen as the second-most abundant gas in the atmosphere.
  - T F 43) Venus has significantly more oxygen in its atmosphere than Earth does.
- M. If we see a star about ten light years away from us, then
- T F 44) we are seeing it as it was about ten years ago, not as it is right now.
  - T F 45) it is one of the most distant stars from us in the Milky Way.
  - T F 46) it is closer to us than most stars are.
  - T F 47) No star can be ten light years from us, since that would be inside our Solar System.
- N. Which of the following is/are true about the orbital motion of the planets?
- T F 48) They all orbit in the same direction.
  - T F 49) They all orbit in about the same plane.
  - T F 50) Their orbits are all elliptical.
  - T F 51) Their orbits are all perfectly circular.
- O. According to your textbook, astrology today is
- T F 52) the same thing as astronomy.
  - T F 53) reasonably useful as a tool to guide your daily activities.
  - T F 54) based on the belief that the positions of celestial bodies influence human destiny.
  - T F 55) a pseudoscience.

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

T F 56) It was designed to search for evidence of exoplanets.

T F 57) It was designed to search for evidence of planets orbiting around other stars.

T F 58) It was designed to replace the Hubble Space Telescope.

T F 59) It searched for planets around all stars within a hundred light years of us.

Q. Which of the following is/are used in the Kepler project to discover exoplanets?

T F 60) The “wobble” method..

T F 61) The “transit” method.

T F 62) Measuring very small changes in a star’s speed.

T F 63) Measuring very small changes in a star’s brightness.

R. Which of the following is/are true about the Earth’s shadow?

T F 64) It is responsible for lunar eclipses.

T F 65) The darkest part is called the umbra.

T F 66) The darkest part is called the penumbra.

S. Which one of the following is/are among the top two 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. What evidence shows that Venus has been resurfaced within the last billion years?
- T F 88) Its volcanoes are active enough to cover the entire surface with lava in less time than that.
  - T F 89) There are not as many craters on its surface as we would expect if the entire surface was older than that.
  - T F 90) There is no such evidence because it didn't happen.
- 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 kind of feature dominates the surface of Mercury?
- T F 94) Impact craters
  - T F 95) Tectonic plates
  - T F 96) Chaotic terrain of unknown origin
- BB. Which of the following is/are among the top two 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.