

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

## ASTRONOMY 4

DeAnza College

Fall 2018

Third Midterm Exam

### Instructions:

1. Use only a #2 pencil on your Parscore sheet, and fill in the bubbles **darkly and completely**.
2. 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.
3. Please print your name and sign your name in the appropriate spaces at the top of this page.
4. **This is a closed-book, closed-notes exam. No reference materials of any kind are to be used during the exam.**
5. Your exam should have five pages (including this one).  
Please check to make sure that it does.
6. Mark your answers on this booklet as well as filling in the bubbles on your Parscore sheet.
7. Turn in your Parscore sheet inside your exam booklet.

Good luck!

- A. Which of the Terrestrial bodies exhibit(s) plate currently-active plate tectonics?
- T F 1) Mercury
  - T F 2) Venus
  - T F 3) Earth
  - T F 4) Earth's Moon
  - T F 5) Mars
- B. Which of the following is/are stages in the development of Terrestrial bodies?
- T F 6) differentiation
  - T F 7) flooding
  - T F 8) cratering
  - T F 9) satellite formation
- C. What did the *Magellan* probe do?
- T F 10) It orbited Mercury.
  - T F 11) It orbited Venus.
  - T F 12) It landed on Mercury.
  - T F 13) It landed on Venus.
  - T F 14) It mapped the surface of Mercury using radar.
  - T F 15) It mapped the surface of Venus using radar.
- D. Why are some volcanoes on Mars so huge?
- T F 16) Mars does not have plate tectonics.
  - T F 17) Mars is a very big planet, so its volcanoes are very big.
  - T F 18) The volcanoes on Mars have been erupting for longer than volcanoes elsewhere.
  - T F 19) The volcanoes on Mars are *not* very big. They are relatively small.
- E. How do we find the relative ages of the Moon's highlands and maria (and what are the results)?
- T F 20) By counting craters: the maria have more craters than the highlands, so they are older than the highlands.
  - T F 21) By analysis of moonrocks from the two different types of terrain: the maria are older than the highlands.
  - T F 22) By counting craters: the highlands have more craters than the maria, so they are older than the maria.
- F. Which of the following is/are found on Mars?
- T F 23) Dry river beds and flood channels.
  - T F 24) A system of canyons several thousand miles long and up to several miles deep.
  - T F 25) Heavily cratered areas.
- G. Which of the following is/are true about Venus?
- T F 26) Its surface temperature is much hotter than Earth's.
  - T F 27) It rotates very slowly and "backward" (i.e. clockwise as seen from above its north pole.)
  - T F 28) It has "oceans" of liquid methane.
  - T F 29) The United States was the first country to land a probe on its surface.
  - T F 30) It does not have a moon.

- H. How does the giant impact hypothesis explain the moon's lack of iron?
- T F 31) The moon's iron core would have vaporized in the impact and escaped to space.
  - T F 32) The ejected material which became the moon would have been mostly iron-poor mantle material.
  - T F 33) 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.
- I. Water on Mars
- T F 34) was detected as liquid near one of the poles of Mars by the *Phoenix* lander.
  - T F 35) cannot exist as liquid at present due to the very low atmospheric pressure.
  - T F 36) must have been in the liquid state in order for Mars's sulfate salts to form.
- J. Which of the following is/are found on Mars?
- T F 37) sulfate salts
  - T F 38) ancient ruins built by Martians
  - T F 39) small spherules called "blueberries"
  - T F 40) white polar caps
- K. Does Mercury have a magnetic field?
- T F 41) Yes, Mercury has a magnetic field.
  - T F 42) No, Mercury does not have a magnetic field.
- L. Which of the following is/are true about the day and night temperatures on Mercury?
- T F 43) The day and night temperatures are very nearly the same.
  - T F 44) The night temperature is several hundred degrees below the day temperature.
  - T F 45) The day temperature on Mercury is hotter than the day or night temperature on Venus.
  - T F 46) The day temperature on Mercury is not as hot as the day temperature on Venus, despite the fact that Mercury is closer to the Sun.
- M. Which of the following are/were American landers or rovers on the surface of Mars?
- T F 47) Viking 1 and Viking 2
  - T F 48) Spirit and Opportunity
  - T F 49) Curiosity (the MSL rover)
  - T F 50) Magellan and Messenger
- N. What kind of feature dominates the surface of Mercury?
- T F 51) Impact craters
  - T F 52) Tectonic plates
  - T F 53) Chaotic terrain of unknown origin
- O. Which of the following is/are among the top two components of the atmosphere of Mars?
- T F 54) Argon
  - T F 55) Carbon dioxide
  - T F 56) Water vapor
  - T F 57) Nitrogen

P. Which one of the following is/are among the top two components of the Earth's air?

- T F 58) oxygen
- T F 59) water vapor
- T F 60) nitrogen
- T F 61) carbon dioxide

Q. Which of the following is the densest?

- T F 62) Earth's crust
- T F 63) Earth's mantle
- T F 64) Earth's core

R. What are the clouds of Venus made of?

- T F 65) Water
- T F 66) Acid
- T F 67) Dust

S. We can study the structure of Earth's interior by

- T F 68) drilling into the lower mantle and core and studying samples in laboratories.
- T F 69) using seismometer records of earthquakes to see how seismic waves are transmitted through the Earth.
- T F 70) using powerful x-ray and sonogram equipment.

T. In Earth's atmosphere, most oxygen is the product of

- T F 71) outgassing
- T F 72) erosion
- T F 73) interaction of solar ultraviolet with the ozone layer
- T F 74) photosynthesis

U. According to the program "Is There Life on Mars?" which of the following was/were necessary for life to begin?

- T F 75) a source of energy
- T F 76) liquid water
- T F 77) organic molecules

V. What evidence do we have that Mercury has a partially molten, metallic core?

- T F 78) Its density is very high for a body of its size.
- T F 79) Its magnetic field is stronger than we would expect if its iron core were entirely solid.
- T F 80) There is no such evidence because Mercury has a solid, rocky core.

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

- T F 81) that the Milky Way is made up of a huge number of individual stars
- T F 82) mountains on the Moon
- T F 83) the phases of Venus

- X. According to the "Cosmos" episode about Kepler's life,  
T F 84) Kepler's mother was arrested on charges of witchcraft.  
T F 85) Tycho Brahe's lifestyle and friends annoyed Kepler.  
T F 86) Kepler developed his laws of planetary motion only after Tycho Brahe died.  
T F 87) Kepler's work was motivated by his religious beliefs.
- Y The term "apparent magnitude" refers to  
T F 88) how bright a star looks in the sky.  
T F 89) what color a star appears to be in the sky.  
T F 90) how big a star looks in the sky.
- Z. If you looked back at the Earth from the Moon when the Moon was in its first quarter phase, what phase would the Earth appear to be in?  
T F 91) first quarter  
T F 92) third quarter  
T F 93) waxing gibbous  
T F 94) trick question – the Earth doesn't have "phases."
- AA. Which of the following was/were used in the Kepler project to discover exoplanets?  
T F 95) The "wobble" method.  
T F 96) The "transit" method.  
T F 97) Detecting very small changes in a star's brightness.
- BB. Which of the following is/are true about the moon?  
T F 98) The first quarter moon is highest in the sky at about midnight.  
T F 99) The full moon is highest in the sky at about sunrise.  
T F 100) The third quarter moon rises at about midnight.

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