

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

## ASTRONOMY 4

DeAnza College

Fall 2017

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. Coesite
- T F 16) is a kind of sulfate salt found in the geysers of Mars.
  - T F 17) is a kind of rock that forms under conditions of shock and high pressure, such as meteor impacts or nuclear explosions.
  - T F 18) was used by Gene Shoemaker as evidence for the impact nature of some geological features.
  - T F 19) is a kind of magnetic area on Mercury, named after Dr. Henry W. Coe who discovered them.
- 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. Referring to the Earth's interior, the statement that "mantle material behaves like a **plastic**"  
 T F 75) means that the mantle is made of lightweight, shiny material made from petrochemicals.  
 T F 76) means that the mantle is made of material with the properties of a solid but capable of flowing under pressure.  
 T F 77) is wrong; the mantle is made of mostly iron and nickel.

- 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.
- R. A light year is
- T F 81) a time unit that is shorter than an ordinary year.
  - T F 82) a time unit that is longer than an ordinary year.
  - T F 83) a time unit that is the same as an ordinary year.
  - T F 84) not a unit of time at all, but rather the *distance* that light travels in one year.
- S. Which of the following is most likely to be a distance between two planets in our solar system? (Mark only one of these "true" and all the others "false".)
- T F 85) 2 miles
  - T F 86) 2 light years
  - T F 87) 2 Astronomical Units
- T. Which of the following is/are true concerning systematic differences between Terrestrial and Jovian planets?
- T F 88) Terrestrials are all smaller than Jovians.
  - T F 89) Terrestrials are all closer to the Sun than the Jovians are.
  - T F 90) Terrestrials all have higher densities than Jovians do.
- U. What is the "ice line" (or "snow line")?
- T F 91) the distance from a star beyond which planets like Jupiter are expected to form.
  - T F 92) the distance north or south of a planet's equator within which water can be expected to remain liquid.
  - T F 93) a kind of formation on a planet's surface that proves that glaciers used to exist there.
- V. Which of the following was/were used in the Kepler project to discover exoplanets?
- T F 94) The "wobble" method.
  - T F 95) The "transit" method.
  - T F 96) Using very high magnification to see little planets around other stars.
  - T F 97) Measuring minute changes in a star's speed.
- W. If you see the Moon rising at about midnight, which of the following describes how it looks?
- T F 98) a thin crescent
  - T F 99) a fully-illuminated ball (full moon)
  - T F 100) one half of the side toward us is illuminated

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