Solar System B Test

Rank: _____

Points:

Science Olympiad North Regional Tournament

at the

University of Florida

DO NOT WRITE ON THIS. THIS IS A TEST SET.

Part 1:

1.
    a. What planet is depicted in image A?
    b. Label: i, ii, iii:
2. What planet is depicted in image B?
3.
    a. What planet is depicted in image C?
    b. What region on image C is indicated by dark blue/purple?
4.
    a. What is unusual about Venus' rotation relative to other solar system objects?
    b. Why may this be?
5. Name 4 geologic features on Mercury
6. It is thought that Mercury once had a greater volume than it does today. Why did it lose volume?
7.
    a. What do the red arrows on image I indicate?
    b. This graph gives us information about a region of the solar system between what two planets?
8.
    a. Label each object in image G with their proper asteroid type.
    b. Describe the composition and location of each type of asteroid (3)
9. What causes "Moonquakes?"
10. Name the surface feature shown in image E. What planet does it belong to?
11. What element gives the surface of Mars its reddish color?
12. Name 2 elements that comprise Mercury's core.
13. Mercury orbits the sun in a 3:2 resonance. What does that mean?
14. Venus' atmospheric pressure is nearly 100 times that of Earth's surface. Why is this?
15. What object can you find image D on? What is this crater called?
16. What is the popular hypothesis that explains the origin of the objects in image F?
17. What natural elements have shaped the Venetian surface?
18. Explain the most accepted theory of how the moon was formed.
19. Image H is a diagram of the Solar System. Label as many elements (max of 11) from image H as you can.
20. What does image J depict?

Part 2:

21. Match images K, L, and M with Kepler's Laws:
    a. First
    b. Second
    c. Third
22. When Earth orbits the sun over some time interval t, it "sweeps" out an Area A. In terms of A, how large is the area "swept" by Earth over some time interval 2.54t?
23. Let's say astronomers discover a new planet that orbits the sun, and they find that it's orbital period is 15 Earth years. How far away is this planet from the sun? (Answer in AU)
24.
    a. If a celestial body lacks craters, what could that imply about that body's geology?
    b. What satellite in the Solar System exhibits this feature? Why may that be?
25.
    a. What does the the acronym OSIRIS-REx stand for?
    b. What's the goal of the OSIRIS-REx mission?