

SAMPLE TEST 4 QUESTIONS
Physics 2021

1. The planet with the shortest rotation period is _____ .

2. How many moons of Jupiter were seen by Galileo? _____

3. Which planet has the lowest density? _____

4. The densities of the four Galilean satellites of Jupiter are
 - a. very low because, as with Jupiter, they are composed mostly of hydrogen
 - b. high (rocky) for the two inner satellites because they formed close to Jupiter, and low (rock and ice) for the two outer satellites because they formed farther away from Jupiter
 - c. all low, typical of rock and ice, because they formed in the outer Solar System
 - d. all high, typical of rock, because they are planetary satellites (similar to the Moon)
 - e. are not known

5. The particles in Saturn's rings
 - a. move in circular Keplerian orbits, the inner particles moving fastest
 - b. revolve in different directions depending upon the distance from the planet
 - c. move in circular orbits, with the outer particles moving fastest because they are farthest from the planet
 - d. are in geosynchronous orbit
 - e. all move as if they are one solid disk

6. Neptune's high cirrus clouds consist of
 - a. crystals of carbon dioxide ice
 - b. crystals of water ice
 - c. methane ice crystals
 - d. ammonia ice crystals
 - e. droplets of sulfuric acid

7. How was Uranus discovered?
 - a. by an astronomer studying old photographs of the sky, several years after they were taken
 - b. by a careful search in the 1930s by an astronomer who was convinced it must be there
 - c. by careful application of Newton's laws to the motion of other planets
 - d. by accident, by an astronomer who was conducting a sky survey
 - e. astrologers told astronomers where to look for it

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9. Why is the term "shepherd satellite" appropriate for the objects so named?

10. Why are Jupiter and Saturn predominantly brown whereas Uranus and Neptune are blue-green in color?

Answers:

1. Jupiter
2. 4
3. Saturn
4. b
5. a
6. c
7. d
8. c
9. These satellites, because of their gravitational pull, keep ring particles from dispersing. Their effect is such that the rings are usually narrow and have rather sharp boundaries.
10. Distances from the Sun (and corresponding temperatures) are such that ammonia (brown) condenses in Jupiter and Saturn's atmospheres, whereas Uranus and Neptune are cold enough for methane (blue-green) to condense.