

1. Density is defined as
 - A) mass times weight.
 - B) weight per square inch.
 - C) mass per unit volume.
 - D) weight divided by the planet's radius.
 - E) size divided by weight.
2. Which of the following are the Jovian planets?
 - A) Jupiter, Saturn, Uranus, and Neptune only
 - B) only Jupiter
 - C) everything past Mars and the asteroid belt
 - D) Jupiter, Saturn, Uranus, Neptune, and Pluto
 - E) only Jupiter and Saturn
3. Which planet by itself contains the majority of mass of all the planets?
 - A) the earth
 - B) Uranus
 - C) Saturn
 - D) Jupiter
 - E) Venus
4. Planetary orbits
 - A) are highly inclined to the ecliptic.
 - B) have the Sun at their exact center.
 - C) are spaced more closely together as they get further from the Sun.
 - D) are evenly spaced throughout the solar system.
 - E) are almost circular, with low eccentricities.
5. Based on its orbit, which planet behaves the least like the others?
 - A) Mercury
 - B) Venus
 - C) Uranus
 - D) Pluto
 - E) Mars
6. Which of the following is not icy in composition?
 - A) the polar cap of Mars
 - B) most Jovian satellites
 - C) rings of Saturn
 - D) asteroids
 - E) comet nuclei
7. What is true about solar system densities?
 - A) In differentiated bodies, the denser materials lie near their surfaces.
 - B) The denser planets lie closer to the Sun.
 - C) The asteroids all have about the same density.
 - D) Saturn has the same density as water.
 - E) Planetary density increases with increasing distance from the Sun.
8. The jovian planets
 - A) all have rings around their equators.
 - B) all lie less than 5 AU from the Sun.
 - C) are all much more dense than any of the terrestrials planets.
 - D) have satellite systems with less than 4 moons.
 - A) all spin slower than the earth.
9. The largest asteroid, and probably the only one to be a spherical "world" is
 - A) Eros.
 - B) Vesta.
 - C) Ida.
 - D) Gaspra.
 - E) Ceres.
10. How much advance warning did we have of the close approach of asteroid 2002 MN in June 2002?
 - A) None; it was found three days after its closest approach.
 - B) several weeks
 - C) six years
 - D) three days
 - E) four hours
11. The Kuiper Belt is found where in the solar system?
 - A) beyond the orbit of Neptune
 - B) between the orbits of Jupiter and Uranus
 - C) among the orbits of the terrestrial planets
 - D) sixty degrees ahead or behind Jupiter
 - E) between the orbits of Mars and Jupiter
12. The tail of a comet always points
 - A) away from the Sun and disappears at perihelion.
 - B) away from the Sun and becomes longest and brightest at perihelion.
 - C) in the direction of the comet's motion.
 - D) toward the Sun and disappears at perihelion.
 - E) toward Earth and never varies.
13. The Oort Cloud is believed to be
 - A) the great nebula found just below the belt stars of Orion.
 - B) a spherical cloud of cometary nuclei far beyond the Kuiper Belt.
 - C) the circular disk of gas around the Sun's equator from which the planets formed.
 - D) a grouping of asteroids and meteoroids between the orbits of Mars and Jupiter.
 - E) a flattened belt of cometary nuclei just beyond the orbit of Neptune.
14. Which of the following does not fall into the category of interplanetary debris?
 - A) meteoroids
 - B) comets
 - C) rings around the jovian planets.
 - D) Trojan asteroids
 - E) Kuiper Belt bodies
15. Which of the following have an icy composition?
 - A) meteorites and most asteroids
 - B) meteoroids
 - C) most comets and the rings of Saturn
 - D) the surface of Mars
 - E) most asteroids

16. The Trojan asteroids are found
- closer on average to the Sun than is the earth.
 - orbiting around the Kuiper Belt body Hector.
 - beyond Neptune, with orbits similar to Pluto's.
 - sixty degrees ahead or behind Jupiter, sharing its orbit about the Sun.
 - with the others, between Mars and Jupiter; their red color gives them their name.
17. The most distant objects in our solar system are
- the jovians.
 - in the Kuiper Belt.
 - in the Oort Cloud.
 - the Trojan asteroids.
 - short period comets.
18. The first spacecraft to land on the surface of an asteroid was named
- NEAR.
 - Stardust.
 - Giotto.
 - Galileo.
 - Contour.
19. Which statement about asteroids is not true?
- Their images become blurry due to outgassing as the Sun heats them up.
 - Most stay between the orbits of Mars and Jupiter.
 - They vary considerably in composition, reflectivity, and size.
 - Some have satellites of their own.
 - Earthgrazers can cross not only our orbit, but even those of Venus and Mercury.
20. The most detailed look we've had of an asteroid comes from
- high-altitude UV spectroscopy.
 - spacecraft sent to an asteroid.
 - ground based radar images.
 - ground based optical images..
 - Earth orbital x-ray images.
21. Before it arrived in orbit about Eros, the NEAR spacecraft visited
- the asteroid Gaspra.
 - Venus.
 - Mars.
 - the Moon.
 - the asteroid Mithilde.
22. Relative to the comet, the direction of the ion tail tells us
- the velocity of the comet.
 - where the ecliptic is..
 - the direction the comet is traveling.
 - where the comet came from.
 - the direction of the Sun.
23. Iron meteorites are believed to come from
- interstellar space.
 - debris from the Kuiper Belt.
 - the crust of a differentiated asteroid, now broken up.
 - a broken up cometary nucleus.
 - the core of a differentiated asteroid, now broken up.
24. Meteor showers are
- caused by the earth passing near the orbit of an old short-period comet.
 - caused by the earth passing near the orbit of an earthgrazing asteroid.
 - usually annual events, as the orbits again intersect.
 - Both A and B are correct.
 - Both A and C are correct.
25. Meteorites are important because
- large ones may cause mass extinctions.
 - some come from the Moon and Mars, as well as the asteroid belt.
 - they contain pristine material from the solar nebula.
 - All of the above are true.
 - None of the above are true.
26. A meteor is
- a chunk of space debris that has struck the ground.
 - a streak of light in the atmosphere.
 - an irregularly shaped body, mostly found orbiting between Mars and Jupiter.
 - an icy body with a long tail extending from it.
 - a chunk of space debris orbiting the Earth.
27. A meteorite is
- an icy body with a long tail extending from it.
 - a chunk of space debris that has struck the ground.
 - an irregularly shaped body, mostly found orbiting between Mars and Jupiter.
 - a chunk of space debris orbiting the Earth.
 - a streak of light in the atmosphere.
28. Long-period comets are believed to originally come from
- the asteroid belt.
 - the interstellar medium.
 - the Oort cloud.
 - the satellite system of Jupiter.
 - the Kuiper belt.
29. The orbits of most comets
- lie almost entirely beyond the orbit of Neptune.
 - are open, going out into interstellar space, and thus never return.
 - have perihelions inside the orbit of Mercury.
 - have aphelions in the Kuiper belt.
 - are smaller than the orbit of Comet Halley, with a 76-year period.

30. Objects in the Kuiper belt
- A) are the sources of long-period comets.
 - B) lie beyond the orbit of Neptune and perpendicular to the ecliptic.
 - C) are dense, like the iron meteorites.
 - D) lie beyond the orbit of Neptune, and close to the ecliptic.
 - E) are in random orbits at all inclinations to the ecliptic.
31. Which of these bodies are most likely to break up over time?
- A) Kuiper Belt bodies
 - B) Jovian satellites
 - C) asteroids in the main belt
 - D) Trojan asteroids
 - E) comet nuclei
32. The Manicouagan reservoir near Quebec is an example of
- A) cometary debris.
 - B) a large meteorite impact.
 - C) Earth's interaction with a comet's dust tail.
 - D) a volcanic event.
 - E) a micrometeorite impact.
33. The nucleus of a comet is typically
- A) a few kilometers in size, and very low in density.
 - B) a few hundred kilometers across, and bright, shiny white from its ices.
 - C) very durable, made of iron.
 - D) located between the orbits of Mars and Jupiter.
 - E) a few meters in diameter.
34. If a comet's ion tail is pointing perpendicular to its direction of travel, the comet is
- A) moving away from the Sun.
 - B) moving closer to the Sun.
 - C) close to or at aphelion.
 - D) close to or at perihelion.
 - E) A comet's tail never points perpendicular to its motion.
35. As the solar nebula contracts it
- A) spins faster due to conservation of angular momentum.
 - B) reverses its direction of rotation.
 - C) loses angular momentum.
 - D) flattens out into the ecliptic plane around the Sun's poles.
 - E) cools due to condensation.
36. In terms of composition
- A) the jovian planets are made only of ice, and the terrestrials only of rock.
 - B) all planets condensed from the same nebula, and have similar compositions.
 - C) the jovian planets are more like the Sun than are the terrestrials.
 - D) the Sun is unique, made of nothing but hydrogen and helium.
 - E) the terrestrials are more like the Sun, since they formed close to it.
37. According to the Solar Nebula theory, planets
- A) should be extremely rare.
 - B) will revolve opposite the star's rotation.
 - C) should orbit perpendicular to their star's equator.
 - D) should be randomly oriented to their star's equator.
 - E) should be a common result of star formation.
38. As a rotating gas cloud contracts, it spins
- A) slower due to a decrease in angular momentum.
 - B) slower due to conservation of angular momentum.
 - C) at a constant rate.
 - D) faster due to conservation of angular momentum.
 - E) faster due to an increase in angular momentum.
39. The larger terrestrial planets have surface features that tend to be
- A) younger
 - B) more cratered
 - C) older
 - D) more rocky
 - E) more icy
40. So far, beyond the solar system the extrasolar planets found have been mostly
- A) large jovians with terrestrial-type orbits.
 - B) brown dwarfs much more massive than Jupiter.
 - C) terrestrials very close to their star, and transiting its disk.
 - D) large jovians orbiting solar-type stars about where our jovians are found.
 - E) terrestrials with very elongated, distant orbits like comets.
41. Most of the extrasolar planets found so far were detected by
- A) noting the drop in the star's light as the planet transits its disk.
 - B) imaging them with the HST in the infrared, where they are easier to spot.
 - C) detecting the oxygen in their atmospheres spectroscopically.
 - D) receiving radio transmissions from them, much like Jupiter emits.
 - E) noting the Doppler shifts of the star as the planet orbits it from side to side.
42. Which statement about extrasolar planets found to date is true?
- A) All lie more than 2 A.U. from their star.
 - B) Most have orbital periods of more than a year.
 - C) Few are found by Doppler shifts of their stars, due to their gravity.
 - D) Some are so close to their stars that their periods are just a few days.
 - E) All are terrestrials, comparable in size to Earth.