Name _____

ASTRONOMY Review Questions - Ch. 14-15

Part I. Ch. 14

1. Most asteroids are found _____.

   (a) beyond Neptune (b) between Earth and the Sun (c) between Mars and Jupiter (d) just beyond Saturn (e) in Jupiter's Lagrangian points.

2. Which class of objects is the greatest threat to planet Earth?

   (a) comets (b) Earth crossing asteroids (c) escaped moons (d) ring particles (e) Kuiper belt objects

3. Which asteroid was found to be less dense than rock, but more dense than ice, suggesting a porous structure?

   (a) Ida (b) Dactyl (c) Eros (d) Mathile (e) Gaspra

4. Which of these Kuiper Belt bodies is the largest?

   (a) Sedna (b) Chiron (c) Pluto (d) Charon (e) Triton

5. When Earth crosses the orbit of an old comet we experience a _____ shower.

6. When a meteoroid makes it to the Earth's surface, we call it a _____.

7. T or F. Comets tend to be more dense than asteroids.

8. T or F. On close inspection, many near Earth asteroids turn out to be fossil comets.

9. T or F. Pluto is both a dwarf planet and a Trans-Neptunion Object (TNO).

10. T or F. The search for Pluto was driven by suspicions that something (other than Neptune) was still perturbing Uranus' orbit.

11. T or F. The nucleus of a comet is bright white because it is made of pure ices of water, methane and carbon dioxide.

12. T or F. We have gathered cometary material and brought it back to Earth.

13. The majority of meteorites that fall to Earth originate in or on

    (a) the Oort cloud (b) the Kuiper belt (c) the asteroid belt (d) Mars (e) the Moon

14. Radioactive dating techniques find these objects to be the oldest in our solar system.

    (a) Kuiper Belt Objects (b) meteorites (c) rocks from lunar maria (d) rocks from Labrador (e) rocks from Mars

15. Who discovered Pluto?

(a) William Herschel (b) Carl Sagan (c) Walt Disney (d) Clyde Tombaugh (e) James Cristy

Part II. Ch. 15

16. The nebular hypothesis is considered a _____ theory.

(a) evolutionary (b) neo-transitory (c) postmodern (d) catastrophic (e) random

17. What factor caused different planets to form out of different types of material?

(a) the angular momentum of the forming planet
(b) the quantity of dust particles in the solar nebula
(c) the variation in temperature throughout the solar nebula
(d) all of the above
(e) none of the above

18. In terms of its orbit, which of the terrestrials is oddest?

(a) Mercury (b) Venus (c) Earth (d) our Moon (e) Mars

19. Which of these is not a consequence of resonance?

(a) the Moon's periods of rotation and revolution are equal
(b) the orbital periods of Neptune and Pluto
(c) the Kirkwood Gaps in the asteroid belt
(d) Venus' cloud and surface rotation rates
(e) Mercury's rotation and revolution around the Sun

20. Objects that are in a 3:2 orbital resonance with Neptune are called:

(a) KBO (b) cometoids (c) plutinos (d) asteroids (e) meteoroids

21. Most of the candidate exoplanets were found by Kepler using the technique of _____.

(a) stellar parallax (b) photometry (measuring star brightness variations) (c) direct imaging (d) precision spectroscopy (e) radar ranging

22. Most of the confirmed exoplanets were found by Earth-based telescopes using the technique of _____.

(a) stellar parallax (b) photometry (measuring star brightness variations) (c) direct imaging (d) precision spectroscopy (e) radar ranging

23. "Catastrophes" are NOT needed to explain:

    (a) the exceptionally large nickel-iron core of Mercury.
    (b) the C-type asteroids.
    (c) our Moon.
    (d) the tilt of Uranus.
    (e) the appearance of Miranda's surface.

24. Perhaps the largest catastrophic scar easily seen on another world is:

    (a) the scarps on Mercury.
    (b) the Hellas Basin of Mars.
    (c) Olympus Mons on Mars.
    (d) the volcanic eruptions still continuing on Io.
    (e) the volcanic eruptions still continuing on Triton.

25. An extrasolar planet that is closer to it's parent star than 0.1 AU and has a mass greater than Jupiter would be called a

    (a) hot Neptune
    (b) hot Jupiter
    (c) proximal Jupiter
    (d) super earth

26. The accretion of gas onto the Jovians was terminated by about 3 million years because _____

    (a) the gases became ionized by the Sun
    (b) the gases were absorbed onto grains and aggregates
    (c) that is the age of the solar system
    (d) the Sun went through a T Tauri phase of strong outflow
    (e) the Jovians migrated outwards

27. T or F. There are no infrared images of exoplanets.

28. T or F. Silicates or rocky material condensed out of the solar nebula at distances where the Jovian planets are now found.

29. T or F. Any model of solar system formation must explain why the planets revolve in the same direction as the sun rotates.

30. T or F. While most large moons orbit counterclockwise above their planet's equators, the smaller moons often show eccentric or even retrograde orbits, suggesting capture.

31. T or F. None of the other stars yet studied has more than one planet orbiting it.

32. T or F. Around other suns, we have found Jupiters where Mercury should be.

33. Most of the mass of the solar system is found in the Sun, but most of the angular momentum is found in the _____.

    (a) solar wind (b) sunspots (c) planets (d) moons of planets (e) asteroids

34. The _____ theory describes the origin of the planets as having been formed by accretion of small particles into progressively larger and larger bodies.

35. The Earth may have gained its water and volatile gases from impacts by _____.

36. A planetesimal is a body large enough for its _____ force to attract nearby bodies.

37. Instead of just gas in LaPlace's original nebular theory, our modern revision stresses the role that _____ plays in condensation and accretion.

38. The planets orbiting other stars so far have been found by _____ shifts of the star's spectra.

39. In the rare case a planet _____ its star, we can find the size, mass, and density of the body passing in front of its sun.