

Name _____

ASTRONOMY Review Questions - Ch. 14-15

Part I. Ch. 11-13 Jovian Moons and Rings

1. Which planet has the most massive and bright ring system? _____
2. Although it is not the most dense moon around Jupiter, _____ is the largest of the Galilean satellites.
(a) Callisto (b) Io (c) Ganymede (d) Europa (e) Adrastea
3. Of the two Galilean Moons with large amounts of liquid water, this one has the water closest to the surface.
(a) Callisto (b) Io (c) Ganymede (d) Europa (e) Adrastea
4. The brightest parts of planetary ring systems are found within the planet's _____.
(a) Roche limit (b) innermost moon's orbit (c) auroras (d) atmospheric haze
(e) belts and zones
5. T or F. The largest gap (division) in the rings of Saturn is caused by an orbital resonance with Mimas.
6. T or F The majority of the Moons in the mnemonic MET DR THIP are tidally interlocked with Saturn.
7. T or F All but the "IP" in the Moons of the mnemonic MET DR THIP have coplanar orbits (within 2 degrees).
8. Which Moon is like a two-toned walnut?
(a) Mimas (b) Tethys (c) Ganymede (d) Iapetus (e) belts and zones
9. The moon Daphnis was found by Cassini in a feature called the _____.
(a) Cassini's Division (b) G-ring (c) F-ring (d) Keeler gap (e) D ring
10. The moon with chaotic dynamics was called _____.
(a) Rhea (b) Hyperion (c) Iapetus (d) Telesto (e) Titan
11. Which Saturnian ring feature appears "braided" or "ropey" and is accompanied by Pandora and Prometheus?
(a) Cassini's Division (b) the G-ring (c) the F-ring
(d) the E-ring (e) the Encke gap

12. Triton's orbit is unusual because it is backward, or _____, and will spiral in toward Neptune.
13. The dark streaks on the moon _____ are thought to be caused by Nitrogen geysers.
14. Three rings around Neptune are named after the _____ of Neptune.
15. T or F. Neptune has no dynamically regular moons.
16. What does the "P" stand for in MET DR THIP?
17. What does the "H" stand for in MET DR THIP?
18. Which big moon of Saturn has long been the most promising as a home for life? _____
19. A good time to find new moons around Saturn is during a _____ – _____ crossing every ~ 15 years.
20. Which moon of Jupiter is the most promising as a home for life? _____
21. Which phenomenon has NOT yet been observed amongst the moons of Saturn?
 - (a) vulcanism supplying ring particles
 - (b) moons residing in Lagrangian points
 - (c) two moon's trading orbits
 - (d) small moons shepherding ring particles
 - (e) medium-size moons colliding periodically
22. The inventor who first understood the rings of Saturn to be orbiting particles and also discovered Titan was _____
 - (a) John Locke
 - (b) Rene Descartes
 - (c) Anton Lee van Hoek
 - (d) Giovanni Cassini
 - (e) Christian Huygens
23. The observer who discovered the largest "gap" in the rings of Saturn was _____
 - (a) John Locke
 - (b) Rene Descartes
 - (c) Anton Lee van Hoek
 - (d) Giovanni Cassini
 - (e) Christian Huygens
24. Shoemaker-Levy 9 was a _____.
 - (a) comet
 - (b) space mission
 - (c) asteroid
 - (d) Jovian moon
25. T or F. The largest gap in the rings of Saturn is caused by the largest moon of Saturn.
26. T or F. Titan has a more opaque and thick (deep) atmosphere than Earth.
27. T or F. While most large moons orbit counterclockwise in their planet's equatorial plane, the smaller moons often show inclined and/or retrograde orbits, suggesting capture.

Part I. Ch. 14

1. T or F. Resonances never stabilize an orbit, they only eject bodies from certain orbits.

2. The _____-type asteroids are thought to be core fragments of differentiated bodies.
3. Jupiter creates resonant gaps in the asteroid belt called _____ gaps.
4. 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.
5. 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
6. 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) Mathilde (e) Gaspra
7. Which of these Kuiper Belt bodies is the largest?
 - (a) Sedna (b) Chiron (c) Pluto (d) Charon (e) Triton
8. When Earth crosses the orbit of an old comet we experience a _____ shower.
9. When a meteoroid makes it to the Earth's surface, we call it a _____.
10. T or F. Comets tend to be more dense than asteroids.
11. T or F. On close inspection, many near Earth asteroids turn out to be fossil comets.
12. T or F. Pluto is both a dwarf planet and a Trans-Neptunian Object (TNO).
13. T or F. The search for Pluto was driven by suspicions that something (other than Neptune) was still perturbing Uranus' orbit.
14. T or F. The nucleus of a comet is bright white because it is made of pure ices of water, methane and carbon dioxide.
15. T or F. We have gathered cometary material and brought it back to Earth.
16. 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
17. 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
18. Who discovered Pluto?

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

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

- (a) Cassini's division
(b) the orbital periods of Neptune and Pluto
(c) the Kirkwood Gaps in the asteroid belt
(d) Hyperion's rotation rate
(e) Mercury's rotation and revolution rates 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