Name:_____

Astr 1010 – Fall 2002 – Test #5

1. Jupiter has the largest mass and volume of the planets.
a) TRUE b) FALSE

2. The chemical composition of the gas giants is mainly
a) carbon dioxide c) hydrogen, helium
b) oxygen, nitrogen d) sulfuric acid, nitrogen

3. The colors of clouds in gas giant planets depend primarily on the temperature and density of their atmospheres rather than chemical composition.
a) TRUE b) FALSE

4. Jupiter's clouds are organized into rising belts and descending zones.
a) TRUE b) FALSE

5. Jupiter's Great Red Spot is a
a) volcano reaching above the cloud tops c) band across the planet
b) hurricane d) stationary cloud formation

6. Jupiter has a large equatorial bulge because
a) of its strong magnetic field c) it is so hydrogen rich
b) of strong satellite tidal forces d) it rotates so quickly

7. What would Jupiter have needed to become a star instead of a planet?
a) more moons c) slower rotation
b) more mass d) a different chemical composition

8. Jupiter emits more energy than it receives from the Sun.
a) TRUE b) FALSE

9. The inner Galilean moons of Jupiter have older surfaces than the outer.
a) TRUE b) FALSE

10. The inner Galilean moons of Jupiter have smaller densities than the outer.
a) TRUE b) FALSE

11. The outer Galilean satellites contain more ice than rock.
a) TRUE b) FALSE

12. The largest Galilean moon, _____, is also the largest moon in the Solar System (larger than the planet Mercury).
a) Io c) Ganymede
b) Europa d) Callisto

13. The most heavily cratered Galilean moon is
a) Io c) Ganymede
b) Europa d) Callisto

14. The intense volcanic activity on Io is the result of
a) Jupiter's magnetic field c) the solar wind
b) tidal forces d) continental drift

15. Recent images of the moon Europa from the *Galileo* mission to Jupiter suggest that there are oceans below the icy surface.
a) TRUE
b) FALSE

16. Saturn's atmosphere has equatorial bands that are darker than those seen in Jupiter's atmosphere.
a) TRUE
b) FALSE

17. Sunlight is faintest on
a) Jupiter
b) Saturn
c) Uranus
d) Neptune

18. The planet with the most moons is
a) Jupiter
b) Saturn
c) Uranus
d) Neptune

19. The gas giant planet with the longest orbital period is
a) Jupiter
b) Saturn
c) Uranus
d) Neptune

20. Compared to the other giant planets, _____ is relatively missing in Saturn's atmosphere because it has sunk into the interior.
a) hydrogen
b) helium
c) carbon dioxide
d) nitrogen

21. The interior of Saturn contains an icy and rocky core surrounded by layers of metallic and liquid hydrogen.
a) TRUE
b) FALSE

22. The rings of all the gas giant planets are found closer to the planet than the critical Roche limit for any significant satellite.
a) TRUE
b) FALSE

23. Saturn's ring system is so thin that the rings almost disappear when viewed "edge-on" from planet Earth.
a) TRUE
b) FALSE

24. Saturn's ring system is made of a solid sheet of ice.
a) TRUE
b) FALSE

25. The inner rings of Saturn orbit slower than the outer rings.
a) TRUE
b) FALSE

26. The Cassini division in Saturn's rings is caused by an orbital resonance.
a) TRUE
b) FALSE

27. *Voyager's* pictures of Saturn's moon _____ revealed a thick atmosphere.
a) Triton
b) Titan
c) Ganymede
d) Phobos

28. In 2004-5, the *Huygens* probe will descend to the surface of Saturn's moon
a) Tethys
b) Titan
c) Iapetus
d) Hyperion

29. The larger the satellite, the more spheroidal in shape.
a) TRUE
b) FALSE

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30. Shepherding satellites are found close to a planet's
a) magnetic poles
b) rings
c) perihelion passage
d) largest moon

31. The "spokes" in Saturn's rings rotate with Saturn's magnetic field.
a) TRUE
b) FALSE

32. *Voyager 1* visited only 2 gas giants while *Voyager 2* visited all 4.
a) TRUE
b) FALSE

33. A planetary magnetic field is found only in planets with liquid int
a) TRUE
b) FALSE

34. Uranus was discovered by
a) Galileo
b) Isaac Newton
c) William Herschel
d) Albert Einstein

35. Uranus has a highly tilted rotation axis.
a) TRUE
b) FALSE

36. Neptune was predicted to exist based upon perturbations in the orbi Uranus.
a) TRUE
b) FALSE

37. The outer three planets are too faint to be visible to the unaided
a) TRUE
b) FALSE

38. Pluto is always the planet most distant from the Sun.
a) TRUE
b) FALSE

39. Pluto was discovered in an extensive search by
a) William Herschel
b) Johann Galle
c) Clyde Tombaugh
d) Asaph Hall

40. We know have good estimates of Pluto's mass and radius thanks to observations of mutual eclipses by Pluto's moon _____.
a) Triton
b) Charon
c) Titan
d) Miranda