

Reminder: This is a longer
test than you will have.

Answer at the end so you
can grade yourself if you
old one use this as a practice
test.

Write the color of your test booklet on the top of your bubble sheet!

Be sure to fill in your name and ID#

Also, please follow the standard bubble-sheet drill:

- use a #2 pencil
- completely fill in the circles
- If you want to change an answer, be sure to completely erase the

1. A planet is said to be in opposition when it is
 - A) rotating opposite to the direction of most planets.
 - B) on the opposite side of the Sun.
 - C) opposite to the Sun in the sky, so that its elongation is 180 degrees.
 - D) polar axis is at 90 degrees with its plane of revolution.
 - E) at ninety degrees to the Sun--that is at an elongation of ninety degrees.
2. Which of these planets is farthest from the Sun?
 - A) Venus B) Mars C) Uranus D) Mercury E) Earth
3. Which of the following planets has an orbit so eccentric that its orbit loops inside that of another planet?
 - A) Jupiter B) Uranus C) Pluto D) Neptune E) Saturn
4. How do the escape velocities of the Jovian planets compare to the terrestrial planets?
 - A) The Jovian planets have much higher escape velocities.
 - B) The escape velocities vary greatly from planet to planet but there are no general differences between jovian and terrestrial planets.
 - C) The terrestrial planets have higher escape velocities since they are more dense.
 - D) There is little variation among the planets.
5. Which of the following is not a jovian planet?
 - A) Uranus B) Jupiter C) Pluto D) Neptune
6. Most asteroids are probably
 - A) the remains of comets that have lost their volatile material.
 - B) material that was captured by the Sun as it passed close to the Sun.
 - C) the remains of an exploded planet that once orbited between Mars and Jupiter.
 - D) There is no generally accepted theory that answers this question.
 - E) material from the early solar system that never formed into a planet.
7. Which planets revolve around the Sun in the same direction that Earth does?

A) Mercury and Venus only.	D) All of the planets.
B) Venus, Mars, and Jupiter only.	E) None of the above.
C) Mercury, Venus, and Mars only.	
8. How is the Roche limit defined?
 - A) The maximum density that a body can have, depending on its composition.
 - B) The maximum distance from a planet that a moon can experience synchronous rotation.
 - C) The maximum mass a moon can have and still be classified as a moon.
 - D) The critical distance from a planet, inside of which a moon can be tidally destroyed.

9. What causes the solar day of a planet to be different from its sidereal day?
A) Solar tides
B) Lunar tides
C) The planet's atmosphere
D) The motion of the planet around the Sun
E) Both A and B above.
10. Why are craters more visible on the Moon than on Earth?
A) More meteorites have fallen to the Moon because of its greater gravitational pull.
B) More meteorites have fallen to the Moon because of the Moon's greater speed in orbit.
C) The Earth's atmosphere stops and/or slows the progress of meteorites.
D) Weather on Earth has removed evidence of old craters.
E) Both C and D above.
11. When we see the gibbous phase of the Moon,
A) most of the sunlit side of the Moon is facing the Earth.
B) less than half of the sunlit side of the Moon is facing the Earth.
C) the Moon is being eclipsed.
D) half of the sunlit side of the Moon is facing the Earth.
12. Differentiation is the
A) sinking of denser material toward the center of planets (or other objects).
B) separation of the Earth's rotational north pole from its magnetic north pole.
C) separation, by geologists, of the portions of the Earth (or other objects).
D) heat flow from within the Earth.
E) melting of volatile elements within a planet.
13. The atmospheric pressure at the surface of Mars is
A) much less than the pressure at Earth's surface.
B) much greater than the pressure at Earth's surface.
C) about the same as the pressure at Earth's surface.
14. Comets are thought to reside mainly in:
A) Distant galaxies.
B) Solar nebulae.
C) The Oort Cloud and Kuiper Belt.
D) The inner solar system.
15. What happens when a solar nebula contracts?
A) It spins faster. B) It flattens out. C) It heats up. D) all of the above E) none of the above
16. The red color of Mars is caused by
A) gases in the atmosphere.
B) refraction of sunlight through the atmosphere.
C) reflection of sunlight from the atmosphere.
D) rust.
E) Both A and C above.
17. The ring system of Saturn consists primarily of
A) an unknown object or objects.
B) large rocky particles.
C) ice or ice-covered particles.
D) large solid rings.

18. Impact from meteorites caused
- A) most or all lunar craters.
 - B) relatively few lunar craters; most are the result of volcanism.
 - C) about half of the lunar craters; the other half are the result of volcanism.
19. If we lived on the Moon, the time from sunrise to sunset would be about how long?
- A) 12 hours.
 - B) 24 hours.
 - C) 2 weeks.
 - D) The question is misleading; the Sun would not appear to rise and set.
 - E) 1 week.
20. The two most abundant elements in Jupiter's atmosphere, with the most abundant listed first, are
- A) helium and carbon dioxide.
 - B) helium and hydrogen.
 - C) hydrogen and carbon dioxide.
 - D) hydrogen and carbon.
 - E) hydrogen and helium.
21. The Cassini division owes its existence to:
- A) the F ring
 - B) the moon Mimas
 - C) 2 shepharding moons
 - D) the Encke division
22. The rotational periods of the Jovian planets are
- A) about the same as that of Earth.
 - B) largely unknown because of their great distances.
 - C) all shorter than that of Earth.
 - D) significantly different due to tidal interactions with their moons.
23. What theory of the Moon's origin is favored by most astronomers today?
- A) The Moon formed as a separate object near Earth and at about the same time.
 - B) The Moon originated as material torn from Earth by the collision of a large Mars-sized body.
 - C) The Moon formed far from Earth and was captured by its gravity.
 - D) The Moon originated as material torn from the young, mostly molten Earth by centrifugal forces.
24. In the late 1970's the *Viking* landers found
- A) definite evidence that life still exists on Mars.
 - B) that there was definitely no life on Mars.
 - C) probable evidence that life existed at one time on Mars.
 - D) definite evidence that life once existed on Mars, but that it no longer is there.
 - E) no evidence that life exists on Mars.
25. What do we know about the magnetic fields of the Jovian planets?
- A) All of the Jovian planets have significant magnetic fields.
 - B) Jupiter, Saturn, and Uranus have very strong fields and we don't know about Neptune.
 - C) Jupiter has a very intense magnetic field, Saturn has a strong magnetic field, and the others have no magnetic field.
 - D) Jupiter and Saturn have weak fields and the others have no fields.

26. One reason that Mars and Venus have larger volcanoes than Earth is that
- A) the crusts of Venus and Mars don't contain large tectonic plates that cause hot spots to move like on Earth.
 - B) those planets have hot spots within them. Earth doesn't.
 - C) canyons on those planets are larger than those on Earth.
27. In size, Mercury is
- A) smaller than the two largest moons in the solar system.
 - B) many times larger than the largest moon in the solar system.
 - C) slightly larger than the largest moon in the solar system.
28. Which region of Jupiter generates its magnetic field?
- A) molecular hydrogen layer
 - B) rocky core
 - C) gaseous atmosphere
 - D) metallic hydrogen layer
29. The rings of Saturn sometimes disappear from view because
- A) they are thin and disappear when we see them "on edge."
 - B) they exhibit phases like the Moon caused by the angle between the Sun, Saturn, and the Earth.
 - C) they dissipate, and later new rings form from large objects that collide.
 - D) when Saturn is at opposition the rings are too far away to be seen.
30. The atmosphere of Venus
- A) is clear, with almost no clouds.
 - B) is covered with clouds that make the surface invisible to optical telescopes.
 - C) has about the same cloud cover as Earth.
31. The fact that Venus has little or no magnetic field is attributed to
- A) its cloud cover.
 - B) its slow rotation.
 - C) its proximity to the Sun.
 - D) the greenhouse effect.
 - E) its proximity to Earth.
32. As a comet travels around the Sun, its ion tail
- A) stretches from the comet in a direction toward the Sun.
 - B) trails behind it.
 - C) keeps the same face pointed toward Venus.
 - D) points at right angles to the Earth.
 - E) stretches from the comet in a direction away from the Sun.
33. Which of the following is seen as a streak moving quickly across the sky?
- A) a comet
 - B) a meteor
 - C) an asteroid
 - D) Both A and B above.
 - E) Both A and C above.
34. Pluto is
- A) a terrestrial planet.
 - B) a Jovian planet.
 - C) classified as neither a terrestrial nor Jovian planet.
 - D) The answer is not known.

35. Which of the following is true?
A) One Martian moon is much smaller than Earth's, and one is slightly smaller.
B) Each Martian moon is much larger than Earth's moon.
C) One Martian moon is much larger than Earth's, and one is slightly larger.
D) Each Martian moon is much smaller than Earth's moon.
E) One Martian moon is smaller than Earth's moon, one is larger.
36. Which of the following objects are composed of material mostly unchanged since the formation of the solar system?
A) surfaces of terrestrial planets
B) moons of jovian planets
C) moons of terrestrial planets
D) comets and asteroids
37. What is the overall density of Earth, taken as an average?
A) about the same as uranium
B) between that of rock and iron
C) about the same as air
D) about the same as the Sun
E) about the same as water
38. Why is one hemisphere of Mars believed to be older than the other?
A) One hemisphere is more heavily cratered.
B) One hemisphere leans more away from the Sun.
C) One hemisphere is darker.
D) One hemisphere is lower.
39. An occultation is the
A) successful prediction of a person's personality by an astrologer.
B) passing of one astronomical object in front of another as seen by the observer.
C) effect of a moon that causes a gap in a planet's ring system.
D) collision of two astronomical objects to produce a ring system.
E) disappearance of a ring system when seen edge-on.
40. Which of these planets has the least atmosphere?
A) Uranus B) Venus C) Mars D) Mercury E) Earth
41. Of the four terrestrial planets, _____ has the least atmospheric pressure at its surface, and _____ has the greatest.
A) Mars... Venus. B) Mercury... Venus. C) Earth... Mars. D) Venus... Mars.
42. Meteorites found on Earth provide possible evidence that life
A) once existed on Mercury.
B) never existed on Mars.
C) once existed on Mars.
D) never existed on any terrestrial planet other than Earth.
E) once existed on Venus.

43. The best maps of Venus's surface have been made by
A) spacecraft using radar. D) the Hubble Space Telescope.
B) earthbound radio telescopes. E) spacecraft using optical telescopes.
C) earthbound optical telescopes.
44. A meteor shower is formed when
A) the Earth passes through the Oort cloud.
B) the Earth passes through a cluster of particles in the solar system.
C) a meteoroid passes through the Oort cloud in our atmosphere, causing rain.
D) the constellation Leo releases meteoroids.
E) Either A or B above.
45. What has been the primary mechanism for creation of the large-scale features of Earth's continents and crust?
A) Volcanic activity which has built up the large mountain ranges.
B) Drift of crustal plates due to convection in the aesthenosphere.
C) Cratering due to large-scale meteoritic impact.
D) Crumpling due to contraction caused by planetary cooling.
E) Expansion and contraction due to variations in solar heating.
46. Which of the following satellites has a significant atmosphere?
A) Io B) Callisto C) Titan D) Europa E) Ganymede
47. The alternating belts and zones in Jupiter's cloud cover are
A) stress areas much like the striations on the moons of Mars.
B) alternate areas where the atmosphere is cloudy or transparent.
C) mysterious patterns whose character is not known.
D) high and low pressure areas.
48. New asteroids are discovered by
A) detecting their rotation.
B) using Kepler's third law as revised by Isaac Newton.
C) observing the streaks they leave on a photographic time exposure of the sky.
D) measuring their sizes compared to planets.
E) finding objects between Mars and Jupiter.
49. The mass of Jupiter is
A) slightly grater than that of Saturn, the next most massive planet.
B) is more than twice the total mass of the other planets.
C) is greater than the total mass of the other planets and the Sun.
D) second only to that of Saturn as the greatest among the planets.

50. Mars would be expected to have seasons,
A) and they are observed in changes in vegetation over the planet.
B) but no evidence of seasons is visible from Earth.
C) and they are observed in the changing size of the frozen areas at the poles.
D) but all evidence points to the fact that it does not have seasons.
E) but the only evidence has come from the recent Mars landing.
51. What evidence is there that suggests Triton is a captured moon?
A) It has a retrograde, highly inclined orbit.
B) Its composition is much different than the other moons of this system.
C) The capture was an event seen by the Hubble Space Telescope.
D) It is a mostly rocky body like a large asteroid, not icy.
52. The four largest moons of Jupiter were first discovered by which of the following scientists?
A) Johannes Kepler B) William Herschel C) Isaac Newton D) Galileo Galilei E) Tycho Brahe
53. It is proposed that in Saturn's atmosphere helium condenses to a liquid and then falls downward. This would explain both the low percentage of helium in Saturn's atmosphere and
A) the fact that its surface does not show great color variations.
B) the bands across its surface.
C) its prominent ring system.
D) its lower-than-expected temperature.
E) its higher-than-expected temperature.
54. Jupiter's moon Europa might possibly harbor life because it has which of the following conditions?
A) liquid water subsurface layer D) thick oxygen-containing atmosphere
B) high surface temperature E) abundant rainfall
C) evidence of plant vegetation
55. Jupiter is noticeably oblate because:
A) The tidal pull of each of its various moons. C) It rotates rapidly.
B) It has such powerful gravity. D) It has a strong magnetic field.
56. How did Mercury's location in the solar system affect its composition?
A) The nearby Sun caused ice in Mercury's interior to melt into liquid water.
B) Mercury is poor in metals because metallic grains could not survive the high temperatures so near the Sun.
C) Because Mercury is so near the Sun, its composition is similar to the Sun; mostly hydrogen and helium.
D) Mercury is rich in metals because only metallic grains could survive the high temperatures so near the Sun.
57. The internal structures of the Jovian planets
A) are solid in some cases and liquid in others.
B) are mostly solid.
C) are completely unknown since we can't see them.
D) are mostly gaseous and liquid.

58. Shepherd satellites are defined as:
- A) Moons that confine a narrow ring.
 - B) Moons that orbit inside the system of rings.
 - C) Moons that follow the exact orbit of another, larger, moon.
 - D) A type of moon that orbits another moon.
59. Which of the following statements best characterizes the comet known as Shoemaker-Levy 9?
- A) It was first observed by Edmund Halley, confirming the predictions of Newton.
 - B) It broke into a series of related objects that collided with the planet Jupiter.
 - C) It will return again in the year 2014.
 - D) It returned to the Oort cloud after a brief close encounter with Earth.
 - E) It was photographed in a close approach by the spacecraft Giotto.
60. The average rate of erosion on the Moon is far less than that on the Earth because:
- A) The Moon is younger than the Earth.
 - B) The crust of the Moon is denser than the Earth's crust.
 - C) There are no tidal forces acting on the Moon.
 - D) The Moon lacks wind and running water.
61. Which of these planets' location was predicted before it was discovered?
- A) Neptune
 - B) Uranus
 - C) Saturn
 - D) Jupiter
 - E) None of the above, for they have been known since antiquity.
62. In general, planets of which group are made up mostly of solid material?
- A) No general statement can be made.
 - B) Jovian
 - C) Terrestrials
63. The nucleus of a comet resembles
- A) material in the Sun.
 - B) the makeup of Ceres.
 - C) material at the center of the Earth.
 - D) a dirty snowball.
64. Which of the outer planets has a rotational axis that lies nearly in its orbital plane?
- A) Neptune
 - B) Jupiter
 - C) None of them
 - D) Uranus
65. Although Mars and Mercury are nearly equal in size, Mars has more of an atmosphere because Mars is
- A) more dense
 - B) cooler
 - C) smaller
 - D) hotter
66. Which of these planets is never seen in a really dark sky?
- A) Saturn
 - B) Jupiter
 - C) Mercury
 - D) None is the answer; all can be seen in a really dark sky.
 - E) Mars

67. Which of the following is the largest asteroid?
A) Rille B) Phobos C) Olympus Mons D) Ceres E) Europa
68. Where is the Cassini division to be found?
A) In the epsilon ring of Uranus.
B) Between the Galilean satellites and the ring of Jupiter.
C) Between Mars and Jupiter where the asteroid belt is found.
D) Between the A and B rings of Saturn.
69. Mercury experiences extreme highs and lows in temperature between day and night because:
A) The planet's surface is undergoing a runaway greenhouse effect.
B) Mercury lacks a blanket of atmosphere
C) Mercury has a low inclination.
D) Mercury is so close to the sun.
70. The Leonid meteor shower is named after the constellation Leo because the
A) particles actually come from that constellation.
B) particles enter the atmosphere in a shape similar to the constellation.
C) meteors spread out as they approach the Earth.
D) meteors appear to come from the direction of the constellation Leo.
E) Both A and D above.
71. The Great Red Spot is
A) the top of a gigantic mountain.
B) a hole in the cloud cover of the planet.
C) condensation from winds off the top of a mountain.
D) an enormous storm system.
E) an area of pollution in the atmosphere.
72. Which of the following lists these planets from least massive to most massive?
A) Mars, Earth, Uranus, Saturn D) Uranus, Mars, Earth, Saturn
B) Uranus, Earth, Saturn, Mars E) Uranus, Earth, Mars, Saturn
C) Mars, Saturn, Earth, Uranus
73. Which of the following can be seen by the naked eye?
A) An asteroid B) A comet C) A meteor D) Both A and B above. E) Both B and C above.
74. Venus is unusual in that its
A) polar axis points almost to the Sun twice during its year.
B) polar axis changes its direction frequently, so the planet is unstable.
C) rotation is backward compared to the direction of most of the planets.
D) polar axis is tilted almost exactly the same as Earth's.
E) More than one of the above.

75. Except for Io, the Galilean satellites all have a cover of meteoric dust over a crust of
A) rock. B) an unknown, highly dense material. C) water ice. D) frozen methane.
76. Auroras are caused by
A) sunlight being refracted by upper layers of the atmosphere.
B) gravitational attraction of light toward the Earth.
C) moonlight being refracted and reflected by upper layers of the atmosphere.
D) charged particles impacting on the Earth's atmosphere.
E) sunlight being reflected by upper layers of the atmosphere.
77. Which moon has the densest atmosphere?
A) Titan B) Io C) Callisto D) Triton
78. As the Moon orbits the Earth,
A) the same side always faces Earth.
B) the same side always stays in darkness.
C) the lit side is always the side that faces the Earth.
D) Both A and B above.
E) All of the above.
79. Which of these planets has rings?
A) Earth B) Uranus C) Mars D) Mercury E) Venus
80. In general, planets of which group have the greater density?
A) Terrestrials B) No general statement can be made. C) Jovian
81. Pluto was discovered
A) as a streak on a photographic plate.
B) because it moved between the time that two photos were taken.
C) because it appears as a disk in a photo, while stars appear as dots.
D) Both A and B above.
E) Both B and C above.
82. Ring systems have been discovered around
A) Saturn and Uranus only. D) Saturn only.
B) Jupiter, Saturn, and Uranus only. E) each of the Jovian planets.
C) Jupiter and Saturn only.
83. The gravitational force due to the Moon is exerted
A) only upon the side of the Earth nearest the Moon.
B) upon the center of the Earth only.
C) upon the entire Earth.
D) upon the water surfaces of the Earth but not upon the land surfaces.
E) only upon the point of the Earth nearest the Moon.

84. Besides energy from the Sun, Io and Europa are heated by
A) the greenhouse effect. D) radioactive material inside.
B) tides caused by Jupiter. E) energy from nearby stars.
C) leftover heat from their formation.
85. ALH84001, a 2 kg meteorite from Mars, is claimed by some scientists to:
A) contain a sample of Martian polar ice C) contain living bacteria
B) be the oldest sample yet of the solar system D) contain fossilized life
86. A mare is
A) a highland area of the Moon. D) a lowland area of the Moon.
B) one of the two polar regions of the Moon. E) a water-covered area on the Moon.
C) the floor of a crater.
87. The polar caps on Mars consist of
A) frozen carbon dioxide only.
B) water ice only.
C) frozen carbon dioxide that is covered in winter by water ice.
D) water ice that is covered in winter by frozen carbon dioxide.
88. The surface of Mercury most resembles which of the following?
A) Venus B) Earth C) the Moon D) Mars E) Jupiter
89. The greenhouse effect keeps Venus hot because
A) the surface is free of sulfur compounds.
B) the atmosphere contains oxygen gas.
C) the planet rotates so slowly.
D) the surface converts infrared radiation into visible light.
E) the atmosphere is rich in carbon dioxide.
90. A meteor is caused by
A) a star falling to Earth. D) a comet streaking across the sky.
B) a rock falling into the atmosphere. E) a disturbance in the Milky Way.
C) a distant nebula.

Since then, this meteorite has been shown not to have fossilized bacteria.

*Ignore the "Origin" lines,
that's from a different book.*

Answer Key -- Fall '03 Test #2

1. C opposite to the Sun in the sky, so that its elongation is 180 degrees.
Origin: Chapter 8....108
2. C Uranus
Origin: Chapter 7....73
3. C Pluto
Origin: Chapter 7....95
4. A The Jovian planets have much higher escape velocities.
Origin: Fall '02 Test 2....79
5. C Pluto
Origin: Fall '02 Test 2....86
6. E material from the early solar system that never formed into a planet.
Origin: Chapter 10....70
7. D All of the planets.
Origin: Chapter 7....93
8. D The critical distance from a planet, inside of which a moon can be tidally destroyed.
Origin: Fall '02 Test 2....82
9. D The motion of the planet around the Sun
Origin: Chapter 7....108
10. E Both C and D above.
Origin: Chapter 6....117
11. A most of the sunlit side of the Moon is facing the Earth.
Origin: Chapter 6....92
12. A sinking of denser material toward the center of planets (or other objects).
Origin: Chapter 6....112
13. A much less than the pressure at Earth's surface.
Origin: Chapter 8....120
14. C The Oort Cloud and Kuiper Belt.
Origin: Fall '02 Test 2....70
15. D all of the above
Origin: Fall '02 Test 2....71
16. D rust.
Origin: Chapter 8....125
17. C ice or ice-covered particles.
Origin: Chapter 9....88
18. A most or all lunar craters.
Origin: Chapter 6....118
19. C 2 weeks.
Origin: Chapter 6....87
20. E hydrogen and helium.
Origin: Chapter 9....71
21. B the moon Mimas
Origin: Fall '02 Test 2....84
22. C all shorter than that of Earth.
Origin: Chapter 9....48
23. B The Moon originated as material torn from Earth by the collision of a large Mars-sized body.

- Origin: Fall '02 Test 2....75
24. E no evidence that life exists on Mars.
Origin: Chapter 8....128
25. A All of the Jovian planets have significant magnetic fields.
Origin: Chapter 9....51
26. A the crusts of Venus and Mars don't contain large tectonic plates that cause hot spots to move like on Earth.
Origin: Chapter 8....116
27. A smaller than the two largest moons in the solar system.
Origin: Chapter 8....91
28. D metallic hydrogen layer
Origin: Fall '02 Test 2....90
29. A they are thin and disappear when we see them "on edge."
Origin: Chapter 9....87
30. B is covered with clouds that make the surface invisible to optical telescopes.
Origin: Chapter 8....100
31. B its slow rotation.
Origin: Chapter 8....81
32. E stretches from the comet in a direction away from the Sun.
Origin: Chapter 10....79
33. B a meteor
Origin: Chapter 10....101
34. C classified as neither a terrestrial nor Jovian planet.
Origin: Chapter 10....65
35. D Each Martian moon is much smaller than Earth's moon.
Origin: Chapter 8....124
36. D comets and asteroids
Origin: Fall '02 Test 2....87
37. B between that of rock and iron
Origin: Fall '02 Test 2....88
38. A One hemisphere is more heavily cratered.
Origin: Fall '02 Test 2....77
39. B passing of one astronomical object in front of another as seen by the observer.
Origin: Chapter 9....96
40. D Mercury
Origin: Chapter 7....71
41. B Mercury... Venus.
Origin: Chapter 8....133
42. C once existed on Mars.
Origin: Chapter 8....135
43. A spacecraft using radar.
Origin: Chapter 8....102
44. B the Earth passes through a cluster of particles in the solar system.
Origin: Chapter 10....91
45. B Drift of crustal plates due to convection in the aesthenosphere.
Origin: Fall '02 Test 2....89
46. C Titan

- Origin: Chapter 9....114
47. D high and low pressure areas.
Origin: Chapter 9....68
48. C observing the streaks they leave on a photographic time exposure of the sky.
Origin: Chapter 7....85
49. B is more than twice the total mass of the other planets.
Origin: Chapter 7....97
50. C and they are observed in the changing size of the frozen areas at the poles.
Origin: Chapter 8....110
51. A It has a retrograde, highly inclined orbit.
Origin: Fall '02 Test 2....89
52. D Galileo Galilei
Origin: Fall '02 Test 2....92
53. E its higher-than-expected temperature.
Origin: Chapter 9....110
54. A liquid water subsurface layer
Origin: Fall '02 Test 2....91
55. C It rotates rapidly.
Origin: Fall '02 Test 2....80
56. D Mercury is rich in metals because only metallic grains could survive the high temperatures so near the Sun.
Origin: Fall '02 Test 2....72
57. D are mostly gaseous and liquid.
Origin: Chapter 9....105
58. A Moons that confine a narrow ring.
Origin: Fall '02 Test 2....85
59. B It broke into a series of related objects that collided with the planet Jupiter.
Origin: Fall '02 Test 2....90
60. D The Moon lacks wind and running water.
Origin: Fall '02 Test 2....74
61. A Neptune
Origin: Chapter 9....113
62. C Terrestrials
Origin: Chapter 7....101
63. D a dirty snowball.
Origin: Chapter 10....78
64. D Uranus
Origin: Chapter 9....46
65. B cooler
Origin: Fall '02 Test 2....73
66. C Mercury
Origin: Chapter 8....87
67. D Ceres
Origin: Chapter 10....49
68. D Between the A and B rings of Saturn.
Origin: Chapter 9....56
69. B Mercury lacks a blanket of atmosphere

- Origin: Fall '02 Test 2....76
70. D meteors appear to come from the direction of the constellation Leo.
Origin: Chapter 10....88
71. D an enormous storm system.
Origin: Chapter 9....69
72. A Mars, Earth, Uranus, Saturn
Origin: Chapter 7....76
73. E Both B and C above.
Origin: Chapter 10....100
74. C rotation is backward compared to the direction of most of the planets.
Origin: Chapter 8....101
75. C water ice.
Origin: Chapter 9....59
76. D charged particles impacting on the Earth's atmosphere.
Origin: Chapter 6....113
77. A Titan
Origin: Fall '02 Test 2....81
78. A the same side always faces Earth.
Origin: Chapter 6....82
79. B Uranus
Origin: Chapter 7....69
80. A Terrestrials
Origin: Chapter 7....102
81. B because it moved between the time that two photos were taken.
Origin: Chapter 10....60
82. E each of the Jovian planets.
Origin: Chapter 9....104
83. C upon the entire Earth.
Origin: Chapter 6....66
84. B tides caused by Jupiter.
Origin: Chapter 9....81
85. D contain fossilized life
Origin: Fall '02 Test 2....78
86. D a lowland area of the Moon.
Origin: Chapter 6....116
87. D water ice that is covered in winter by frozen carbon dioxide.
Origin: Chapter 8....115
88. C the Moon
Origin: Chapter 8....79
89. E the atmosphere is rich in carbon dioxide.
Origin: Chapter 8....80
90. B a rock falling into the atmosphere.
Origin: Chapter 10....89