

All questions are worth 1 point, unless noted otherwise.

Part 1. Fill in the blank or short answer

No.	Question	Answer(s)
1.	Name the four geological processes that shape planetary surfaces (4 pts).	(a) (b) (c) (d)
2.	Name the three processes that heated the planetary interiors (3 pts).	(a) (b) (c)
3.	When observing the night sky, you can sometimes find planets along the (a) _____ in one of the (b) _____ constellations. (2 pts)	(a) (b)
4.	The most abundant elements in the solar system are (a) _____ and (b) _____. (2 pts)	(a) (b)
5.	The boundary line in the solar nebula beyond which ices could condense is called the _____; only metals and rocks could condense within it.	
6.	When planets begin to melt, the materials in them begin to separate from one another. The heaviest materials sink to form the core. Lower density materials rise to form the crust. This process is called _____.	

No.	Question	Answer(s)
7.	According to the Giant Impact Hypothesis, the large object called _____ hit Earth a long time ago causing the Earth's axis to tilt and leading to the formation of the Moon.	
8.	Name the three ways in which moons can form (3 pts).	(a) (b) (c)
9.	Which of Kepler's Laws compares the orbital period and radius of orbit of a planet to those of other planets?	
10.	Which two of Kepler's Laws describe motion characteristics of a single planet? (2 pts)	(a) (b)
11.	Assume a planet takes 8 years to orbit the Sun. Find its distance from the Sun in AU. Show your work. (2 pts)	
12.	What is syzygy? (2 pts)	

No.	Question	Answer(s)
13.	Explain spring tide. (2 pts)	
14.	_____ are the rise and fall of sea levels caused by the combined effects of the gravitational forces exerted by the Moon and the Sun and the rotation of Earth	
15.	When the Moon is at (a)_____ or third quarter, the Sun and Moon are separated by 90° when viewed from the Earth, and the solar tidal force partially cancels the Moon's. At these points in the lunar cycle, the tide's range is at its minimum; this is called the (b)_____. (2 pts)	(a) (b)
16.	Some shorelines experience a (a)_____— two nearly equal high and low tides each day. Other locations experience a (b)_____— only one high and low tide each day. A (c)_____ -- two uneven tides a day, or one high and one low — is also possible. (3 pts)	(a) (b) (c)
17.	Why doesn't Venus experience noticeable seasons?	

No.	Question	Answer(s)
18.	Venus has these two highland areas (a)_____ and (b)_____. (2 pts)	(a) (b)
19.	Why is Venus' magnetic field much weaker than the Earth's?	
20.	Who is Mercury named after?	
21.	Phobos means (a)_____, and Deimos means (b)_____. Fitting names for the sons of a war god. (2 pts)	(a) (b)
22.	Name one requirement for a planet to have a global magnetic field.	
23.	Complete the diagram of lunar eclipses below. Draw and label the Moon for the three different types of lunar eclipses. Label the regions of shadow. (8 pts) <div data-bbox="186 1276 1474 1864" style="border: 1px solid black; padding: 10px; margin-top: 10px;"> </div>	

Part 2. True or False

No.	Question	Answer (true or false)
24.	The waning crescent moon rises at about 3 am and sets at about 3 pm.	
25.	In order to be classified as a planet, a body must only meet two criteria: (1) It orbits a star, but is itself not a star or a moon. (2) It is massive enough for its own gravity to give it a nearly round shape.	
26.	All of the outer planets have rings.	
27.	When the Moon is at apogee, it is at its closest point to Earth.	
28.	Mars does not experience seasons.	
29.	Due to the effects of libration, we can see about 75% of the Moon's surface from Earth.	
30.	Io's atmosphere is about 95% carbon dioxide and about 3% nitrogen.	
31.	The Sun contains 89.9% of all the mass of the solar system.	
32.	If an imaginary line were drawn from the earth to the sun, then the area swept out by the line in every 31-day month would be the same.	
33.	A circle is the special case of an ellipse in which the two foci are at the same location.	
34.	The Law of Harmonies states that the ratio of the cubes of the periods to the squares of their average distances from the sun is the same for every one of the planets.	
35.	There is about a seven-day interval between springs and neaps.	

No.	Question	Answer (true or false)
36.	When crater rays form, the fine particles of crushed rock are more reflective than large pieces, so the rays look brighter.	
37.	Like Earth's Moon, Phobos and Deimos always present the same face to their planet.	
38.	The thickness of the lithosphere is closely related to a planet's size: small planets tend to have thicker lithospheres.	

Part 3. Short answer or fill in the blank. Refer to the images on page 2.

No.	Question	Answer
39.	What is shown in Figure 1 (on the cover), in this case involving Mercury?	
40.	Which body is shown in Figure 2?	
41.	This image (Figure 2) was taken by NASA's current _____ spacecraft and published on Time.com on May 25, 2017.	
42.	Which body is shown in Figure 3?	
43.	The body shown in Figure 3 is the most (a) _____ place in the solar system.	
44.	Which type of eclipse shown in Figure 4? (2 pts)	

No.	Question	Answer
45.	Draw and label the Sun, Moon, and Earth during this type of eclipse. Also draw and label the regions of shadow. (8 pts)	
46.	Which body is shown in Figure 5?	
47.	Name two of the features shown in the yellow circle in Figure 5. (2 pts)	
48.	Which body is shown in Figure 6?	
49.	What type of body is this (in Figure 6)?	
50.	Which spacecraft obtained this image?	
51.	Which body is shown in Figure 7?	
52.	What type of body is this (in Figure 7)?	

No.	Question	Answer
53.	This image (Figure 7) was taken on September 20, 2017 by NASA's _____ spacecraft.	
54.	Which body is shown in Figure 8?	
55.	The climate orbiter that took this picture (Figure 8) entered the orbit about this body in December 2015. Name the orbiter.	
56.	Which body is shown in Figure 9?	
57.	This image (Figure 9) was acquired on December 7, 1992, by a spacecraft that was on its way to explore the Jupiter system in 1995–97. Name the spacecraft.	

Part 4. Multiple Choice

No.	Question	Answer
58.	Which of the following moons has a retrograde orbit? a. Io b. Titan c. Triton d. Iapetus	
59.	Our solar system has two different types of planets -- rocky planets and gas giants -- because the _____ across the protoplanetary disk was not uniform. a. density b. temperature c. pressure d. all of the above	

No.	Question	Answer
60.	<p>The _____ is the relatively rigid outer layer of a planet; it generally encompasses the crust and the uppermost portion of the mantle.</p> <p>a. core b. regolith c. lithosphere d. tectonic plate</p>	
61.	<p>The uppermost region of the atmosphere, which gradually fades away into space is called the _____.</p> <p>a. mesosphere b. thermosphere c. exosphere d. stratosphere</p>	
62.	<p>Gases that are particularly good at absorbing infrared light are called greenhouse gases. Examples of greenhouse gases are:</p> <p>a. water vapor (H₂O), carbon dioxide (CO₂), and methane (CH₄) b. carbon dioxide (CO₂), oxygen molecules (O₂), and nitrogen molecules (N₂) c. methane (CH₄), argon (Ar), and helium (He) d. water vapor (H₂O), methane (CH₄), and oxygen molecules (O₂)</p>	
63.	<p>Which mission became the first artificial satellite of Mars?</p> <p>a. MESSENGER b. Mariner 9 c. Mars Observer d. Mars Climate Orbiter</p>	
64.	<p>What was the purpose of the Magellan mission to Venus?</p> <p>a. Radar mapping mission b. Orbiter and lander c. Flyby d. Rover</p>	

No.	Question	Answer
65.	NEAR Shoemaker was NASA's mission to orbit and land on _____. a. Pluto b. Ceres c. Vesta d. Eros	
66.	_____ is a layer of loose rock, rocky fragments, and dust that covers the surface of a planet or planetary satellite. a. Crust b. Lithosphere c. Topsoil d. Regolith	
67.	Some bodies in the solar system may have _____, which erupt volatile liquids like water and ammonia, instead of molten lava. a. shield volcanoes b. stratovolcanoes c. cryovolcanoes d. cinder cone volcanoes	
68.	The _____ is a spherical distribution of trillions of icy planetesimals and cometary nuclei that surrounds the solar system and extends out to a radius of about 1.6 light-years from the Sun. a. Kuiper Belt b. Oort Cloud c. Asteroid Belt d. Local Group	
69.	Spring Tides happen during _____ and _____ moons and neap tides happen during _____ moons. a. Gibbous, Crescent, Quarter b. 1st Quarter, 3rd Quarter, New c. Full, New, Quarter d. Full, New, Crescent	

No.	Question	Answer
70.	Neap is an Anglo-Saxon word meaning _____. a. weak woman b. tiny river c. without the power d. thirsty child	
71.	The _____ mission in the early 1990s mapped 98 percent of Venus' surface. a. Magellan b. Venus Express c. Akatsuki d. Mariner 2	
72.	Mercury's surface gravity is about _____% of that on Earth. a. 10% b. 38% c. 52% d. 83%	
73.	What is the diameter of Deimos? a. 2 miles b. 7.5 miles c. 15.3 miles d. 23.1 miles	
74.	Deimos orbital period is approximately a. 10 hours, 3 minutes b. 5 days, 3 hours, 42 minutes c. 11 days, 2 hours, 10 minutes d. 1 day, 6 hours, 17.9 minutes	

Scoring

Page	Score	Possible Points
3		13
4		11
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6		15
7		12
8		10
9		16
10		7
11		5
12		5
13		5
TOTAL		108