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<th>Radiation 1</th>
<th>Radiation 2</th>
<th>Planets 1</th>
<th>Planets 2</th>
<th>Planets 3</th>
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a. The polarization of light waves
b. The wave nature of light
c. The particle nature of light
d. The process of ionization
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The two forms of electromagnetic radiation that penetrates best the Earth atmosphere are:

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b. Ultraviolet and visible light
c. Visible and radio waves
d. Infrared and microwaves
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The star Rigel in the constellation of Orion has a blue color, while the star Betelgeuse has a red color. What can you conclude about these two stars?

a. Rigel is hotter than Betelgeuse
b. Rigel is cooler than Betelgeuse
c. Rigel is more distance than Betelgeuse
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$400 Question Ch3

What is true of a blackbody? Draw the bb curve for two stars of different temperatures.

a. It appears black to us, regardless of its temperature
b. Its energy is not a continuum
c. Its energy peaks at a wavelength determined by its temperature
d. If its temperature doubled, the peak in its curve would move to longer wavelengths.
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According to the Stephan-Boltzmann law, if the temperature of the Sun were to increase by a factor of two, its energy output would
a. Increase by a factor of sixteen
b. Increase by a factor of four
c. Decrease by half
d. Increase by a factor of two
e. Remain the same
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From lab measurements, we know that a particular line formed by hydrogen appears at a wavelength of 121.6 nm. The spectrum of a particular star shows this line at 121.8 nm. What can we conclude?

a. The star is moving toward us
b. The star is moving away from us
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$200 Question Ch4

An incandescent light (glowing tungsten filament) produces:
a. An emission spectrum, with bright lines due to ionized tungsten
b. An absorption spectrum, with dark lines due to the solid filament
c. A continuum, with bright tungsten lines added.
d. A continuous spectrum, with the peak giving the temperature of the filament.
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The Orion Nebula, M-42, is a hot, thin cloud of glowing gas, so its spectrum is:

a. A continuum, strongest in the color red
b. Emission, a few bright lines against a dark background
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$400 Question Ch4

Explain the 3 different types of spectrum (continuum, absorption and emission). How are they produced?
$400 Answer Ch4

A: white dwarf (continuous spectrum)

B: Distant star through gas (absorption spectrum)

C: Nothing

D: Gas expelled (emission spectrum)
What information about an object can be determined by observing its spectrum?

a. Its temperature  
b. Its radial motion  
c. Its chemical composition  
d. All of the above
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$100$ Question from Planets 1

Rank the four terrestrial planets in order of size from small to large

A) Mercury, Venus, Earth, Mars
B) Mercury, Mars, Venus, Earth
C) Mercury, Mars, Earth, Venus
D) Mars, Mercury, Venus, Earth
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Under what circumstances can differentiation occur in a planet

A) The planet must have a rocky surface
B) The planet must be made of metal and rock
C) The planet must have volcanoes and plate tectonics
D) The planet must have a molten interior
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The principal sources of internal heat of terrestrial planets are

A) conduction and accretion
B) accretion and radioactivity
C) solar heating and eruption
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What are the conditions necessary for a terrestrial planet to have a strong magnetic field

A) a molten metallic core only
B) fast rotation only
C) both a molten metallic core and fast rotation
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Which of the following doesn’t have a major effect in shaping planetary surfaces? Mention the planets in which these processes occur.

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$100 \text{ Question from Planets 2}$

Order the planets by increasing density?

A) Saturn, Jupiter, Mars, Earth
B) Jupiter, Venus, Earth, Mercury
C) Venus, Earth, Saturn, Jupiter
D) Mars, Earth, Saturn, Jupiter
$100 Answer from Planets 2

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$200 Question from Planets 2

Which planet has a ring system?

A) Jupiter
B) Saturn
C) Uranus
D) Neptune
E) all of the above
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According to our theory of solar system formation, why do all the planets orbit the Sun in the same direction and nearly in the same plane?

A) the original nebula happened to be disk-shape by chance
B) any planet that orbited in the opposite direction or a different plane were ejected from the solar system
C) the laws of conservation of energy and angular momentum ensure that any rotating, collapsing cloud will end up as a spinning disk
D) the sun formed fist and as it grew in size it spread into a disk
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What is the primary component of the atmospheres of Venus, Mars, Earth and Titan

A) Venus (sulfuric acid), Mars (CO2), Earth (oxygen), Titan (Nitrogen)
B) Venus (sulfuric acid), Mars (CO2), Earth (nitrogen), Titan (nitrogen)
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A) the synchronous rotation of the Moon around Earth
B) the volcanous of Io
C) the rings of Saturn
D) the possible liquid ocean in Europa
E) the heavily cratered surface of Callisto
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B) between the Earth and the Sun
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D) in the orbit of Jupiter, but 60 degrees ahead of it or behind it
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$300 Question from Planets 3

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A) fly apart  
B) slow down  
C) keep spinning  
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The Dynamo Theory holds that

A) lightning plays a major role in generating magnetic fields
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C) the Earth magnetic field must switch polarities every few million years
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What are the major factors that rule out the co-formation theory for the Moon and Earth?

A) Each body has different atmospheric content and a different density
B) Each body has different surface features and different atmospheric content
C) Each body has different chemical composition and different surface features
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