Practice Questions for the Final Test of ASTRO 1010, Fall 2014

There are 2 questions per chapter, the final test will have 3 questions per chapter
At the *speed of light*, how long would it take to go from Earth to the Sun?

a) about a second
b) about a minute
c) about 8 minutes
d) about a day
e) about a year
At the speed of light, how long would it take to go from Earth to the Sun?

a) about a second
b) about a minute
c) about 8 minutes
d) about a day
e) about a year
Put these objects in the correct order, from nearest to farthest from Earth:

a) The Sun, the Milky Way, Alpha Centauri, Pluto, the Andromeda galaxy
b) The Sun, Alpha Centauri, Pluto, the Andromeda galaxy, the Milky Way
c) The Sun, Pluto, Alpha Centauri, the Milky Way, the Andromeda galaxy
d) Pluto, the Sun, Alpha Centauri, the Milky Way, the Andromeda galaxy
Put these objects in the correct order, from nearest to farthest from Earth:

a) The Sun, the Milky Way, Alpha Centauri, Pluto, the Andromeda galaxy
b) The Sun, Alpha Centauri, Pluto, the Andromeda galaxy, the Milky Way

c) The Sun, Pluto, Alpha Centauri, the Milky Way, the Andromeda galaxy

d) Pluto, the Sun, Alpha Centauri, the Milky Way, the Andromeda galaxy
A map of the entire sky, as seen from Earth, is called

a) a meridian.
b) a sky finder.
c) the celestial sphere.
d) the celestial directory.
A map of the entire sky, as seen from Earth, is called

a) a meridian.
b) a sky finder.
c) the celestial sphere.
d) the celestial directory.
Directly above Earth's north pole on the celestial sphere is

ea) the Big Dipper.
b) the Zenith.
c) the brightest star in the sky.
d) a star called Polaris.
e) C and D
Directly above Earth's north pole on the celestial sphere is

a) the Big Dipper.
b) the Zenith.
c) the brightest star in the sky.
d) a star called Polaris.
e) C and D
Whose suggestion that the Sun is the center of the solar system was first taken seriously by many people?

a) Copernicus
b) Tycho
c) Kepler
d) Galileo
Whose suggestion that the Sun is the center of the solar system was first taken seriously by many people?

a) Copernicus
b) Tycho
c) Kepler
d) Galileo
Upon its publication in 1543, the Copernican model was immediately accepted by most scientists because its predictions of planetary positions were essentially correct.

a) Yes, and it was therefore subsequently referred to as the "Copernican revolution."

b) Yes, and it was subsequently used by navigators to explore the New World.

c) Yes, because there was a growing recognition that the Ptolemaic model was inaccurate.

d) No, it was not substantially more accurate than the Ptolemaic model.

e) No, it was only after spacecraft explored the solar system that scientists were convinced of its validity.
Upon its publication in 1543, the Copernican model was immediately accepted by most scientists because its predictions of planetary positions were essentially correct.

a) Yes, and it was therefore subsequently referred to as the "Copernican revolution."

b) Yes, and it was subsequently used by navigators to explore the New World.

c) Yes, because there was a growing recognition that the Ptolemaic model was inaccurate.

d) **No, it was not substantially more accurate than the Ptolemaic model.**

e) No, it was only after spacecraft explored the solar system that scientists were convinced of its validity.
How much do *sidereal* and *solar* clocks differ after one day?

a) 4 minutes  
b) about an hour  
c) about two hours  
d) 24 hours  
e) none of the above
How much do *sidereal* and *solar* clocks differ after one day?

a) 4 minutes  
b) about an hour  
c) about two hours  
d) 24 hours  
e) none of the above
During the month of March, in the northern hemisphere, the Sun's declination...

a) is increasing.
b) is decreasing.
c) remains constant.
d) goes up and down over the course of each day.
e) cannot be determined.
During the month of March, in the northern hemisphere, the Sun's declination...

a) is increasing.
b) is decreasing.
c) remains constant.
d) goes up and down over the course of each day.
e) cannot be determined.
What produces \textit{acceleration} in a car?

a) the accelerator  
b) the brake  
c) the steering wheel  
d) all of the above
What produces *acceleration* in a car?

a) the accelerator
b) the brake
c) the steering wheel
d) all of the above
What causes the tides?

a) gravity from earth's core
b) gravity from the Moon pulling on the oceans
c) gravity from the Moon pulling harder on one side of earth than the other
d) gravity from the Moon or the Sun pulling harder on one side of earth than the other
What causes the tides?

a) gravity from earth's core
b) gravity from the Moon pulling on the oceans
c) gravity from the Moon pulling harder on one side of earth than the other
d) gravity from the Moon or the Sun pulling harder on one side of earth than the other
How is the isotope $^{14}\text{C}$ different from $^{12}\text{C}$?

a) It has more protons.
b) It has more neutrons.
c) It has more electrons.
d) all of the above
e) none of the above
How is the isotope $^{14}\text{C}$ different from $^{12}\text{C}$?

a) It has more protons.

b) It has more neutrons.

c) It has more electrons.

d) all of the above

e) none of the above
If the Sun's surface became much hotter (while the Sun's size remained the same), it would emit more ultraviolet light but less visible light than it currently emits.

a) Yes, because the visible light would be absorbed by the Sun's warmer surface.
b) Yes, because the Sun's warmer surface would emit more ultraviolet light and less visible light.
c) No, the Sun's warmer surface would emit less light at all wavelengths.
d) No, the Sun's warmer surface would emit more light at all wavelengths.
e) No, because if the Sun's size remained the same, the amount of light emitted would remain the same at all wavelengths.
If the Sun's surface became much hotter (while the Sun's size remained the same), it would emit more ultraviolet light but less visible light than it currently emits.

a) Yes, because the visible light would be absorbed by the Sun's warmer surface.

b) Yes, because the Sun's warmer surface would emit more ultraviolet light and less visible light.

c) No, the Sun's warmer surface would emit less light at all wavelengths.

d) **No, the Sun's warmer surface would emit more light at all wavelengths.**

e) No, because if the Sun's size remained the same, the amount of light emitted would remain the same at all wavelengths.
The largest optical telescopes are designed to have

a) high magnification, large collecting area, and high angular resolution.
b) high magnification, large collecting area, and low angular resolution.
c) low magnification, large collecting area, and low angular resolution.
d) large collecting area and high angular resolution-the magnification is of secondary importance.
e) large collecting area and low angular resolution-the magnification is of secondary importance.
The largest optical telescopes are designed to have

a) high magnification, large collecting area, and high angular resolution.
b) high magnification, large collecting area, and low angular resolution.
c) low magnification, large collecting area, and low angular resolution.
d) large collecting area and high angular resolution - the magnification is of secondary importance.
e) large collecting area and low angular resolution - the magnification is of secondary importance.
What does *better angular resolution* mean?

a) things look larger
b) things look smaller
c) you can see smaller details
d) you can see fainter objects
e) none of the above
What does *better angular resolution* mean?

a) things look larger  
b) things look smaller  
**c) you can see smaller details**  
d) you can see fainter objects  
e) none of the above
Where do asteroids come from?

a) There are the remains of a planet between Mars and Jupiter that broke up.
b) They are escaped small moons.
c) They are leftover planetesimals from the inner solar system.
d) They are leftover planetesimals from the outer solar system.
Where do asteroids come from?

a) There are the remains of a planet between Mars and Jupiter that broke up.
b) They are escaped small moons.
c) They are leftover planetesimals from the inner solar system.
d) They are leftover planetesimals from the outer solar system.
Most of the solar system's planets are made of rocks and minerals. They orbit the Sun in the same direction and rotate in the same direction as they orbit the Sun.

- a) are made of rocks and minerals.
- b) are made of gas.
- c) orbit the Sun in the same direction.
- d) rotate in the same direction as they orbit the Sun.
- e) C and D
Most of the solar system's planets

a) are made of rocks and minerals.
b) are made of gas.
c) orbit the Sun in the same direction.
d) rotate in the same direction as they orbit the Sun.
e) C and D
Why could the jovian planets grow to be much larger than the terrestrial planets?

a) They were farther from the Sun, where gravity was weaker.
b) They formed beyond the *frost line* where ices could condense, so they included hydrogen compounds.
c) They were far enough from the Sun to escape the *heavy bombardment* that battered the early solar system.
Why could the jovian planets grow to be much larger than the terrestrial planets?

a) They were farther from the Sun, where gravity was weaker.

b) They formed beyond the frost line where ices could condense, so they included hydrogen compounds.

c) They were far enough from the Sun to escape the heavy bombardment that battered the early solar system.
What age does radiometric dating give for Moon rocks and meteorites?

a) zero  
b) about 6000 years  
c) about 4 million years  
d) about 4 billion years  
e) about 14 billion years
What age does radiometric dating give for Moon rocks and meteorites?

a) zero  
b) about 6000 years  
c) about 4 million years  
d) **about 4 billion years**  
e) about 14 billion years
How does an object's rate of cooling vary with size?

a) A larger object cools more slowly than a smaller object.

b) A smaller object cools more slowly than a larger object.

c) Size has no effect on an object's rate of cooling.
How does an object's rate of cooling vary with size?

a) A larger object cools more slowly than a smaller object.
b) A smaller object cools more slowly than a larger object.
c) Size has no effect on an object's rate of cooling.
What evidence is there for past liquid water is on Mars?

a) channels that look like dry riverbeds
b) eroded crater rims and erased craters
c) *Spirit* and *Opportunity* rovers have found mineral evidence of water
d) ice in Mar's polar caps
e) all of the above
What evidence is there for past liquid water on Mars?

a) channels that look like dry riverbeds
b) eroded crater rims and erased craters
c) *Spirit* and *Opportunity* rovers have found mineral evidence of water
d) ice in Mar's polar caps
e) all of the above
If Earth was more reflective (had a higher albedo), what would happen to its temperature?

a) It would go up.
b) It would go down.
c) It wouldn't change.
If Earth was more reflective (had a higher albedo), what would happen to its temperature?

a) It would go up.

b) It would go down.

c) It wouldn't change.
Why do we think Mars was once warmer and wetter?

a) It has plenty of volcanoes to outgas an atmosphere.
b) It doesn't have strong magnetic field to protect from solar wind stripping.
c) There is evidence it once had liquid water. It is too cold for that now.
d) all of the above

e) A and C
Why do we think Mars was once warmer and wetter?

a) It has plenty of volcanoes to outgas an atmosphere.
b) It doesn't have strong magnetic field to protect from solar wind stripping.
c) There is evidence it once had liquid water. It is too cold for that now.
d) All of the above

e) A and C
Jovian planets

a) have rings and large numbers of moons.
b) all have many moons, but only Saturn has rings.
c) have moons, but Uranus and Neptune have only one or two.
d) are massive and rotate slowly.
Jovian planets

a) have rings and large numbers of moons.
b) all have many moons, but only Saturn has rings.
c) have moons, but Uranus and Neptune have only one or two.
d) are massive and rotate slowly.
What is the most geologically active world we know of in the solar system?

a) Earth  
b) Mercury  
c) Mars  
d) Jupiter  
e) Io
What is the most geologically active world we know of in the solar system?

a) Earth
b) Mercury
c) Mars
d) Jupiter
e) Io
Orbits of asteroids in the asteroid belt

a) often intersect the orbits of the planets.
b) are mostly between Mars and Jupiter.
c) are grouped into patterns by resonances with Jupiter.
d) are mostly inside the frost line.
e) all except A
Orbits of asteroids in the asteroid belt

a) often intersect the orbits of the planets.
b) are mostly between Mars and Jupiter.
c) are grouped into patterns by resonances with Jupiter.
d) are mostly inside the frost line.
e) all except A
A meteor

a) is a flash of light made by a falling meteorite.

b) is usually seen at night.

c) is a fragment of asteroid or comet that reaches Earth's surface.

d) all of the above

e) A and B
A meteor

a) is a flash of light made by a falling meteorite.
b) is usually seen at night.
c) is a fragment of asteroid or comet that reaches Earth's surface.
d) all of the above
e) A and B
Is it easy to photograph of a planet orbiting around another star?

a) Yes, but a large telescope because the planet would be faint.

b) No, because the brightness of the star would overwhelm the planet.

c) Yes, but a space telescope must be used so that the scattered light from the star would be minimized.
Is it easy to photograph a planet orbiting around another star?

a) Yes, but a large telescope because the planet would be faint.

b) No, because the brightness of the star would overwhelm the planet.

c) Yes, but a space telescope must be used so that the scattered light from the star would be minimized.
How can the Doppler shift be used to search for planets around other stars?

a) Astronomers look for a periodic, red-then-blue shift in the spectrum of the planet.

b) Astronomers look for a periodic, red-then-blue shift in the spectrum of the star.

c) Astronomers look to see if the star "wobbles" in the sky, shifting slightly back and forth.
How can the Doppler shift be used to search for planets around other stars?

a) Astronomers look for a periodic, red-then-blue shift in the spectrum of the planet.

b) Astronomers look for a periodic, red-then-blue shift in the spectrum of the star.

c) Astronomers look to see if the star "wobbles" in the sky, shifting slightly back and forth.