

Sample ASTR101 Exam I Questions (Fall 2022)

Solutions available at the end of this document, but no peeking! Try to do these questions without the book or the internet, and without looking at the solutions. for the most realistic exam experience.

Multiple Choice Questions

1. If Earth were twice as far as it actually is from the Sun, the force of gravity attracting Earth to the Sun would be
- twice as strong
 - half as strong
 - one-quarter as strong
 - four times as strong
 - eight times as strong

Remember:

$$F = G \frac{m_1 m_2}{r^2}$$

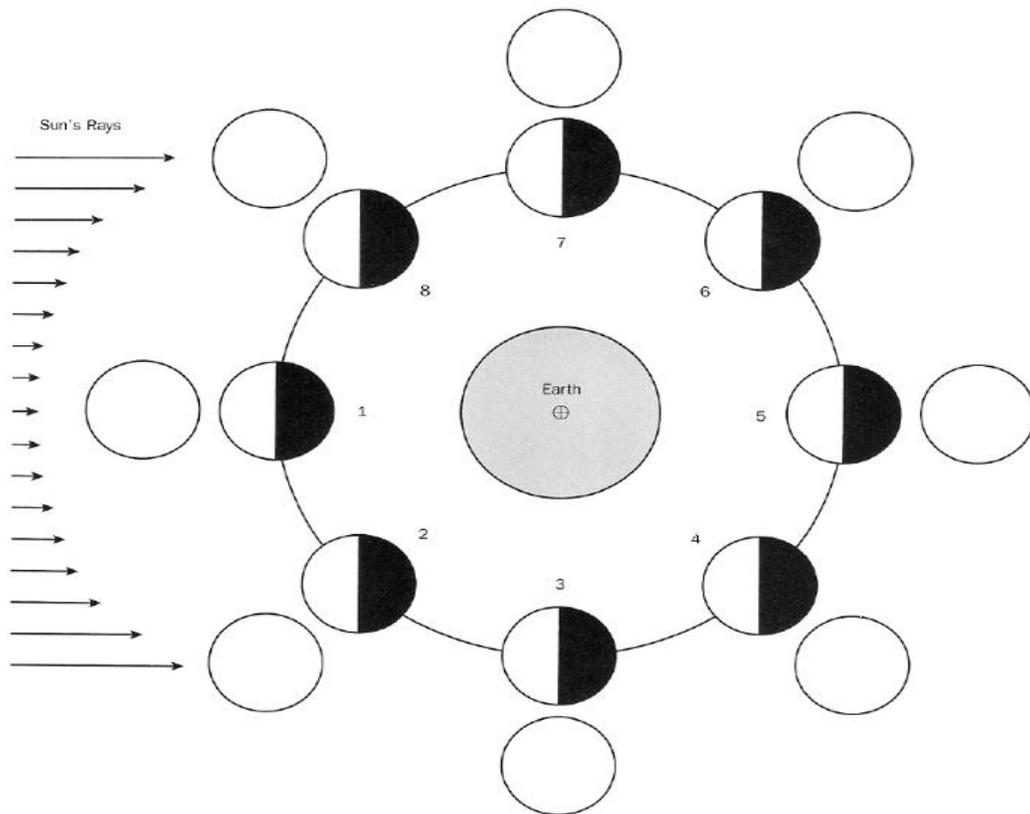
2. On the Autumnal (Fall) equinox
- There are more than 12 hours of sunlight during the day
 - The sun is above the horizon for 24 hours
 - The sun reaches its lowest point in the sky during the year
 - Day and night are equal lengths
 - There is less than 12 hours of sunlight during the day
3. The two most common elements in the solar system are
- nitrogen and helium
 - hydrogen and helium
 - carbon and iron
 - iron and magnesium
 - hydrogen and carbon
4. Which astronomer proposed a heliocentric model?
- Copernicus
 - Aristotle
 - Tycho Brahe
 - Ptolemy
 - Pythagoras

Short Answer Questions

5. Astronomers are very excited about a new planet that was discovered. If the tilt of the planet's axis is measured to be 3° do you expect that it will experience seasons like we do on Earth? Why or why not?

6. Fill in the empty circles in the diagram below with how the moon would appear to us at each point on Earth.

Directions: How much of the illuminated side of the moon can you see from Earth as it completes its orbit? Draw your results in each circle.



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1. C

2. D

3. B

4. A

5. No, Earth experiences seasons because of our 23.5° tilt. 3° is not large enough to cause noticeable seasons.

6. See The Cosmic Perspective Fundamentals Fig. 2.10 or equivalent for a similar figure.