

STUDY GUIDE EXAM 1 ASTRO 25 Spring 2020

Thursday, March 12, 2020

Notes

You may use notes during the exam that are written on **ONE** store-bought 3x5 inch index card, written in your own hand. You can use both sides.

Bad Astronomy (Study notes: Bad Astronomy)

Explain what is wrong with the following misconceptions:

1. *The North Star is the brightest star.*
2. *There is a Dark Side of the Moon.*
3. *The phases of the Moon are caused by the Earth's shadow.*
4. *It's hot in summer because we are closer to the Sun in summer.*
5. *A theory is an unproven idea.*

Overview of the Universe (Study notes: Universe; Lecture-Tutorial "Looking at Distant Objects")

1. Know the name of the **Supercluster, Galaxy Cluster**, and galaxy we live in.
2. Explain the difference between the **Solar System, Milky Way Galaxy** and the **Universe**.
3. What is the difference between a **star** and a **planet**?
4. The speed of light is _____ km/sec. How fast do radio waves travel?
5. Define a **light-second, light-minute, light-hour** and **light-year**.
6. Distances between planets are measured in light-_____.
Distances between nearby stars are measured in light-_____.
Distances between nearby galaxies are measured in _____s of LY.
The sizes of galaxies are measured in _____s of LY.
7. The Universe is 14 _____ years old.; the solar system _____ years old.
8. Describe the cycle of star birth and star death and how it leads to the formation of planets.
9. Explain why astronomers are looking into the past when they look into the sky.

Celestial Sphere, Starrise and Starset (Reader 8 & 9; Lecture-Tutorial "Motion" & "Solar vs. Sidereal Day")

1. Explain what constellations are, as opposed to star clusters.
2. Describe the parts of the **Celestial Sphere**: the **North Celestial Pole, South Celestial Pole, Celestial Equator**.
3. Diagram these terms: **horizon, zenith, the meridian**.
4. Describe how the stars move in the sky because of the rotation of the Earth on its axis. (**Sky Gem #1**)
5. Explain why some stars rise and set every day and why some don't. What is the difference between **north circumpolar stars** and **south circumpolar stars**?
6. Describe how stars move in the sky when you are facing north, south, east, and west.
7. Draw what happens to Polaris when you go north or south (**Sky Gem #2**).
8. Where along the horizon does a star rise that is north of the celestial equator? If it's on the celestial equator? If it's south of the celestial equator? (**Sky Gem #3**). In what direction will the star set in each case?.
9. Given your latitude north or south of the equator, draw the Celestial Equator in the sky.
10. What is the difference between the **solar day** and **the sidereal day**?