

STUDY GUIDE EXAM #1

Bring a **Scantron 883** for the exam. You may use notes written on **one** standard, pre-cut, **3x5-inch** index card, *written in your own hand*; you may 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; Reader 2)

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 300,000 _____. How fast do radio waves travel?
5. The Universe is 14 _____ years old.
6. Describe the cycle of star birth and star death and how it leads to the formation of planets.
7. Explain why astronomers are looking into the past when they look into the sky.

Celestial Sphere. Starrise and Starset (Astropedia 2: Motions in the sky; Reader 8; Lecture-Tutorial p 1-2 "Position")

1. Describe the parts of the **Celestial Sphere**: the **North Celestial Pole**, **South Celestial Pole**, **Celestial Equator**.

2. Use these terms: **horizon**, **zenith**, **the meridian**.

3. Describe how the stars move in the sky because of the rotation of the Earth on its axis.

(Sky Gem #1)

4. 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**?
5. What is special about **Polaris**?

The Annual Motion of the Sun (Astropedia 2: Constellations and Seasons; Reader 12 & 20, Lecture-Tutorial "Seasonal stars", "Ecliptic")

1. Explain why the time is later to the east and earlier to the west.
2. Explain the difference between **Local Mean Time** and **Standard Time**.
3. Describe how the motion of the Earth around the Sun causes the Sun to appear to drift along the **ecliptic** thru the constellations of the **zodiac**. Which way does it move on the ecliptic, eastward or westward?
4. Explain the difference between the **equinoxes** and the **solstices** and give the approximate dates on which they occur.

Motion of the planets (Reader 18 & 19; Lecture-Tutorial "Observing Retrograde Motion")

1. Explain the difference between **inferior** and which **superior** planets. Which are the two inferior planets?
2. Discuss how the speed of a planet depends on its distance from the Sun.
3. Compare the direction of motion of the inferior and superior planets along the ecliptic (eastward or westward) at conjunction and opposition.
4. Explain why inferior planets have **inferior conjunction** and **superior conjunction**, while superior planets have **opposition** and **conjunction**. Be able to illustrate.