Study Guide for Exam 1- Astronomy

**Required Materials:**

 Scantron (#882)

 #2 pencil

 Scientific calculator

**Vocabulary**

scientific notation

Milky Way

solar system

Astronomical Unit clusters galaxy super clusters

Star light year

planets

constellations asterisms magnitude scale apparent visual magnitudes flux

celestial sphere scientific model precision revolution rotation

ecliptic zodiac seasons Moon phases lunar Eclipses

Sun Eclipses penumbra Saros cycle umbra first principles.

Aristotle’s Universe Ptolemy Copernicus Copernicus’s Model heliocentric model Tycho Brahe ellipse

semi-major axis eccentricity empirical Galileo

Kepler’s Three Laws of Planetary Motion Isaac Newton Gravity

Orbits mass Inverse square relation weight

Newton’s Mountain Tides Spring Tides neap tides

Newton’s Universe light wave frequency

Amplitude electromagnetic radiation Wavelength speed of light

Photon nanometer Ångstrom infrared

Ultraviolet x-rays gamma ray primary mirror

atmospheric windows Refracting telescopes Reflecting telescopes primary lens

eyepiece focal length chromatic aberration seeing.

radio telescopes diffraction fringe interferometer adaptive optics.

Light-gathering power Resolving power light pollution sidereal tracking

photographic plate photometers charge-coupled devices (CCDs) spectrograph

false-color images spectrum Telescopes in Space grating

**Calculations**

1. Calculation of the distance from the Sun to a planet.
2. Compare star’s flux using magnitude scale.
3. Calculate distances using speed of light and time.
4. The relation between weight, planet’s radius, and planet’s mass.
5. Impulse/Momentum Relationship
6. To write numbers in scientific notation.
7. Using Kepler’s third law to calculate periods.
8. Energy of a photon.
9. Relation between frequency and wavelength

**Important Concepts**

1. Mass and weight.
2. Newton’s laws.
3. Kepler’s laws.
4. Inverse square law.
5. Moon Phases.
6. Tides.
7. Eclipses
8. Ellipse Geometry.
9. Compare distances.
10. Relation between telescope diameter and light gathering power.
11. Scientific notation.