Astronomy

Final Exam Review 2017

I. Introduction

What is an AU?
What is a light year?
What is the universe?
How big is the universe?
What is a galaxy? What is a solar system, what is a cluster, super-cluster, the local group
About how many galaxies are there in our universe?
How old is our universe? What is the cosmic calendar? What is your cosmic address?

II. History of Astronomy

What were some of the contributions to astronomy from ancient societies?
Astronomers through Time; who was Plato, Aristotle, Aristarchus, Pythagoras, Ptolemy?
What were their contributions to ancient astronomy?
What is retrograde motion? What is an epicycle and a deferent?
What are the heliocentric and geocentric models of the solar system?
Who came up with the heliocentric and geocentric models of the solar system?
What are the contributions of the following astronomers?
Copernicus, Tycho Brahe, Kepler, Galileo, Newton, Einstein…

III. Charting the Heavens

What is the celestial sphere?
What is a constellation and an asterism?
How do you read and interpret Sky maps & Star charts? How do we measure star brightness?
What is azimuth and altitude?
How do the stars, sun, moon and planets move across the sky daily?
What is rotation? What is a day?
What is revolution? What is a year?
How do we know that the Earth spins?
How do we know that the Earth orbits around the sun?
What is a constellation? Do constellations change? Why/Why not?
What is the difference between solar and sidereal days? What is solar time?
What is the ecliptic?
What is the cause of seasons on the Earth?
What is and when are the equinoxes?
What is and when are the solstices?
When is the Earth closest to and furthest from the sun? What are these points in orbit called?
What is parallax?
What causes the seasons on Earth?

IV. The Sun

How big is the sun? What is its surface temperature?
What are the inner layers of the sun called? What are the temperature ranges?
What are the outer atmospheres of the sun called? What are the temperature ranges?
What is a granule?
What is a solar prominence?
What is a sunspot?
What is a solar flare?
What is the solar wind?
What is a magnetic storm?
What is nuclear fusion? How hot is it?
What are the zones in the sun?
What does the magnetic field have to do with sunspots?
What is the sunspot cycle?
What elements are most commonly found in the sun?
What is the aurora borealis?

V. The Moon

What are sidereal and synodic periods?
When is the moon closest to and furthest from the earth?
What are these points in orbit called?

What is the moon's rotation and revolution?
Know the phases of the moon.
What does waxing and waning mean?
What is a lunar month?
What are the types of eclipses and their differences? Solar, lunar, partial, total, penumbral, annular
What is penumbra and umbra?
What is the cause of tides on Earth? How often do the tides cycle?
What are the differences between high, low, spring and neap tides?

VI. **The Planets and the Solar System**
What is an inner planet? Outer? What is a terrestrial planet? Jovian?
Name the planets in their usual order. What happens 15 of every 248 years in our solar system?
How hot/cold is Mercury? What is this planet like?
How hot/cold is Venus? What is up with this planets atmosphere? What is the nickname for this planet?
You should already know plenty about the Earth! It has a moon (what is its real name?)
How hot/cold is Mars? Could we survive on Mars? Why/Why not? Moons?
What is obvious about Jupiter? Moons? (What is that hurricane-looking thing on it?)
What is obvious about Saturn? Moons? Uranus? Moons? Neptune? Moons? Pluto? Moons?
What are comets? Name the famous one (76 yrs).
What are asteroids, meteors, meteoroids, meteorite, meteor shower, crater?
How have we studied the planets? What spacecraft, methods and other tools?
What is comparative planetology?
Are there planets outside of our solar system?
How was our solar system formed?
How were the planets formed? How are moons formed?
What is the asteroid belt, Kuiper belt, Oort Cloud?

VII. **Telescopes**
What is the purpose of a telescope, an observatory?
What is the effect of the atmosphere on observing?
Name the 2 major types of optical telescopes?
What is a mirror? What is a lens?
How have scientists recorded images and data over the centuries?
What is a photometer? What is a CCD? What is adaptive optics?
Are all telescopes land based? Why/Why not?
How does the light gathering power of a telescope change with the diameter?What is resolving power and resolution?
What is the HST?
What is radio astronomy? What are radio telescopes made of? What is Arecibo?
Why use radio telescopes rather than optical? What is interferometry?
What other forms of radiation are studied? By what instruments? What is a photon?
What are the advantages and disadvantages of space based astronomy VS. land based?
What is the Doppler effect? How is it used in astronomy?
What is the relationship between frequency and the temperature of a star?

VIII. **Other assorted stuff from class**
What elements are commonly found in stars?
What are the differences between giants, supergiants and dwarfs.
What is a nebula?
What is a protostar?
What is a stable star?
What is a nova? Supernova?
What is a neutron star?
What is a black hole?
How does the big-bang hypothesis work? How could it end? What is the proof for it?
What is a Hertzsprung-Russell diagram?

Make sure to bring your star locator. (It must be turned in with your exam)
You may also use your solar system spreadsheet on the exam. (It must be turned in with your exam)

Bring a #2 pencil.