Science Space Exploration Unit Test-Review Questions

**Vocabulary: Define the following terms**

* geocentric
* heliocentric
* elliptical
* black hole
* galaxy
* Hertzsprung-Russell Diagram
* solar system
* astronomical unit
* light-year
* azimuth
* altitude
* satellites-low earth orbit and geosynchronous; remote sensing
* telescopes-optical (reflecting and refracting), radio, x-ray, segmented mirror, interferometry, Hubble Space Telescope
* spectra
* Doppler Effect-blue shift and red shift stars
* Electromagnetic radiation spectru-frequency and wavelength
* parallax
* triangulation
* space junk
* rockets-structural and mechanical elements, fuel, payload, staged rockets, action, reaction and thrust

**Practice Questions**

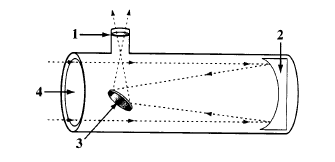
1. Compare the heliocentric model and the geocentric model of the solar system by drawing a diagram of each system.
2. What is the order of the planets starting from the sun.
3. One astronomical unit is equivalent to the distance between the centre of \_\_\_\_\_\_\_\_\_\_\_ and the \_\_\_\_\_\_\_\_\_\_\_\_\_\_.
4. Why are both astronomical units and light years needed as units to describe distances in outer space?
5. One light year is equal to how many astronomical units?
6. What name is given to the compass direction when we are trying to locate an object in the night sky?
7. What is the point directly overhead called?
8. The table below has two incorrect entries
   1. Identify each error and correct it.
   2. Explain why each of the two entries is incorrect

|  |  |  |
| --- | --- | --- |
| Reading | Azimuth | Altitude |
| 1 | 30° | 93° |
| 2 | 364° | 45° |

1. Is it ever possible to specify the location of an object in the sky knowing only the altitude? Explain your answer.
2. List three uses for satellites.
3. Compare low earth orbit satellites and geosynchronous satellites.
4. What is meant by space is a “vacuum”?
5. Complete the following table:

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Type | Diagram | Description | What is it used for and advantages to other telescopes | What type of electromagnetic radiation is used |
| Optical (reflecting) |  |  |  | Visible light |
| Optical (refracting) |  |  |  |  |
| X-Ray |  |  |  |  |
| Radio |  |  |  |  |
| Segmented-mirror |  |  |  |  |

1. Label the numbered parts of the following diagram. What type of telescope is this?



1. What is interferometry and why is it advantageous to astronomers?
2. What is a spectrum?
3. What can a star’s spectrum indicate about a star?
4. What type of shift in the spectrum would you expect from a star that was:
   1. Moving towards the Earth.
   2. Moving away from Earth.
   3. Moving in the same direction as Earth, at the same speed as Earth?
   4. Moving at right angles to the direction of sight.
5. List step-by-step how you would determine the distance between a target object and yourself using triangulation. Be detailed. A diagram may help.
6. List and describe three environmental hazards of space.