SAMPLE TEST 2 QUESTIONS
Physics 2021

1. My 22-year old son can never remember which eyepiece, when used with his telescope, gives the higher magnification. Is it Eyepiece 1 (f = 12 mm) or Eyepiece 2 (f = 2.4 cm)? _____.

2. Fernbank has a 36-inch telescope, whereas Georgia Tech has a 16-inch telescope. How much greater is the light gathering capability of the larger telescope? _____

3. Uranus was discovered by _____.

4. The primary constituent of the Earth's atmosphere is _____.

5. A typical refracting telescope is made up of
   a. A short-focal-length lens at the front and a long-focal-length lens at the rear (next to your eye as you look through the telescope)
   b. A long-focal-length lens at the front and a short-focal-length lens at the rear (next to your eye as you look through the telescope)
   c. A mirror that gathers and focuses the light, and a lens next to your eye to examine the image
   d. Two mirrors, one concave and the other convex
   e. Two mirror, one concave and one flat

6. When compared to the terrestrial planets, which of the following characteristics is NOT true of the Jovian planets?
   a. they are more massive
   b. they have higher average densities
   c. they have faster rotation rates
   d. they are farther apart
   e. they have larger diameters

7. What is the speed of an object that shows a Doppler redshift of 0.1 nm from the stationary value of 600 nm?
   a. 50 m/s
   b. 50 cm/s
   c. 599.9 m/s
   d. 600.1 m/s
   e. 50 km/s

8. The best Earth-based sites for modern large astronomical telescopes are
    a. at sea level, where the air is less turbulent
    b. near to large cities, where the warm air from human activity serves to stabilize the overlying atmosphere
    c. on the down-wind side of mountain ranges, where smooth airflow produces clear air and stable images
    d. in deep basins to block out stray light
    e. on the tops of high mountains, above a large fraction of the disturbing atmosphere

9. Why do transverse seismic S waves NOT traverse the Earth's deep interior?
    a. Because they cannot travel through the dense, solid core
    b. Because they are surface waves and only travel along the surface of the Earth
    c. Because the Earth is not transparent to these electromagnetic waves
    d. Because the Earth has too large a diameter
    e. Because they cannot travel through the liquid part of the core

10. Describe the motion of the two plates that meet at the San Andreas fault.

ANSWERS

1. Eyepiece 1 because $M = F / f$

2. $(36 / 16)^2 = 5.1$ X

3. William Herschel

4. Nitrogen (N_2)

5. b

6. b

7. e

8. e

9. e

10. The two plates are sliding by each other.