

Earth Science Exam: Earth in Space

Name: _____

Date: _____

Section: _____

For questions 1-7, mark "T" for true and "F" for false. If the answer is false, also write the correct response/explain.

_____ 1. The diameter and circumference of the earth are greatest at the **equator**.

_____ 2. You would weigh **more** at the top of a Mount Everest than you would at the bottom of the ocean.

_____ 3. **Perigee** describes the point at which the earth is closest to the sun.

_____ 4. The element that makes up the largest percentage of the atmosphere is **nitrogen** (N₂).

_____ 5. A communication satellite would most likely be placed in a **polar** orbit.

_____ 6. There are **12** standard time zones, each representing 15° of rotation around earth's circumference.

_____ 7. **P waves** can travel through all layers of Earth's crust, mantle, and core.

_____ 8. How are scientists able to study the composition and size of the interior layers of Earth?

- a. by direct observation
- b. by analyzing surface rock samples
- c. by using seismic waves
- d. by deep-drilling into earth's interior layers

_____ 9. The gravitational attraction between two objects is determined by their masses and the

- a. distance between the objects
- b. weight of the objects
- c. diameter of the objects
- d. density of the objects

_____ 10. This solid layer of the Earth is made up primarily of iron and nickel.

- a. inner core
- b. outer core
- c. asthenosphere
- d. lithosphere

_____ 11. The speed of seismic waves increases abruptly at around 50 km below the earth surface, marking the boundary between the crust and the mantle. This would indicate that the mantle is

- a. denser than the crust
- b. less dense than the crust
- c. higher in temperature than the crust
- d. fluid

_____ 12. The amount of matter in an object is the object's

- a. mass
- b. gravity
- c. weight
- d. plasticity

_____ 13. As the distance from the center of the earth increases, the force of gravity

- a. stays the same
- b. increases
- c. doubles
- d. decreases

_____ 14. The possible source of the earth's magnetism is the earth's

- a. crust
- b. mantle
- c. core
- d. lithosphere

_____ 15. A satellite in geosynchronous orbit is always directly above the

- a. equator
- b. South Pole
- c. North Pole
- d. prime meridian

_____ 16. The measured weight of an object is slightly less at the equator than it is at the pole because of Earth's

- a. orbit
- b. axis
- c. shape
- d. Tilt

_____ 17. The point farthest from the sun in the earth's orbit is called

- a. apogee b. perigee c. aphelion d. perihelion

_____ 18. At noon on the vernal equinox, the sun's rays strike the earth vertically along the

- a. Tropic of Cancer b. equator c. Tropic of Capricorn d. North Pole

_____ 19. When the sun's rays reach their highest angle in the Northern Hemisphere, the season there is

- a. spring b. summer c. fall d. winter

_____ 20. The wobbling motion made by the earth's axis as it turns in space is called

- a. apogee b. perigee c. aphelion d. perihelion

Fill in the blanks below to accurately describe Earth's motion:

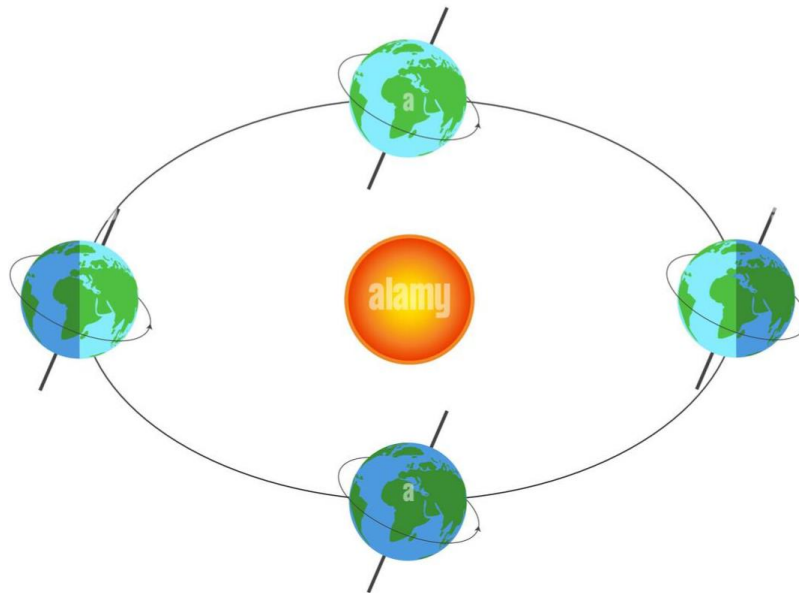
21. Earth _____ on its _____, and it _____ around the _____.

22. The force of gravity on the moon is one-sixth of the Earth's gravity. An object with a mass of 12 kg weights approximately 120 N on the surface of the earth; how much would this object weigh on the surface of the moon? What is this object's mass on the surface of the moon?

23. How many of hours of daylight do we experience in Miami, FL on the vernal equinox?

24. How many hours of daylight can Quito, Ecuador, a city located along the equator, expect on July 1st?

25. Mark the summer solstice, autumnal equinox, winter solstice, and vernal equinox for the northern hemisphere on the diagram below. (Assume counterclockwise motion of Earth around the sun.)



Bonus: During which season is standard time used? If it is 3:00 pm in standard time, what time would it be if Daylight Saving Time were in effect?