

DATE:

NAME:

CLASS:

UNIT 5

BLM 5-21

ASSESSMENT

Unit 5 Test

Goal • Demonstrate your understanding of the concepts presented in Unit 5.

What to Do

Read each question carefully before answering in the space provided.

Definitions

Define each term in full sentences.

1. heliocentric

2. spectroscope

3. red shift

4. payload

5. cosmonaut

True or False

In the space provided, indicate whether each statement is true (T) or false (F).

- _____ 6. Planets follow circular orbits around the Sun.
_____ 7. The angle above the horizon of a star is its altitude.
_____ 8. The Sun's light exhibits an emission spectrum.
_____ 9. An astronomical unit (AU) is the distance light travels in one year.
_____ 10. A satellite that orbits Earth in about 1.5 h is in a low Earth orbit.
_____ 11. The terrestrial planets have similar conditions on their surfaces.

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Circle the best answer.

12. An astronaut is tethered to the *International Space Station*, keeping a constant distance from the station. The false statement here is
- (a) The station's velocity relative to the astronaut is zero.
 - (b) The astronaut's velocity relative to the station is zero.
 - (c) The velocities of the station and the astronaut relative to Earth are different.
 - (d) The velocities of the station and the astronaut relative to Earth are the same.
13. The correct statement about a scientist and what he discovered is:
- (a) Galileo, spectroscope
 - (b) Kepler, radio telescope
 - (c) Newton, law of gravity
 - (d) Ptolemy, elliptical orbits

Use the information to answer the following question

Spectral Types I – continuous
 II – emission
 III – absorption

14. The Sun is a huge sphere of gases at tremendously high pressure with an atmosphere of cooler gases at low pressure around it. The Sun's spectrum should be of type
- (a) I only
 - (b) III only
 - (c) I and II only
 - (d) II and III only
15. Satellite dishes are becoming more popular with people interested in watching many TV channels. The satellites that these dishes are aimed at are in:
- (a) geosynchronous orbits so that the satellite dish need not be moved
 - (b) low Earth orbits so the signals reach the customers in a fraction of a second
 - (c) low Earth orbits so the signals don't have to be very powerful, thus saving money
 - (d) geosynchronous orbits so that the satellites can't be harmed from Earth

Fill in the Blanks

Complete each sentence with the correct term.

16. When measuring the position of the Moon in the sky we can use _____ - _____ coordinates. The angle clockwise from north is the _____ and the _____ is the angle above the horizon.
17. Reflecting telescopes have _____ for objectives. The magnification of a telescope is found by _____ the objective's focal length by the eyepiece's focal length.
18. If a star is approaching us, its light will be _____. This is due to the _____.

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19. When triangulating to find the distance of an object that is far away, a _____ baseline is preferred in order to increase the _____ of the measurement.
20. Radio waves have an advantage over visible light for astronomy in that they can penetrate _____ and _____.
21. A rocket consists of a _____, _____, and a _____.
22. The weightless conditions that astronauts feel when in orbit is called _____. It is caused by _____.
23. Earth's natural satellite is _____. The planet with the hottest surface temperature is _____. _____ is the biggest planet, and the farthest planet yet reached by a spacecraft from Earth is _____.

Short Answers

24. Explain how the rising and setting of the Sun and Moon are explained in a geocentric and heliocentric model of the universe.
- (a) geocentric _____
- _____
- (b) heliocentric _____
- _____
25. What did astronomers conclude from the observation that the light from almost all the galaxies is red shifted?
- _____
- _____
- _____
26. Why do astronomers want to make bigger and bigger telescopes? Give two reasons.
- _____
- _____
- _____
27. Give three ways that people are using the Global Positioning System.
- _____
- _____
- _____
28. Why did astronomers want a telescope in space when they can build bigger ones on Earth?
- _____
- _____
- _____

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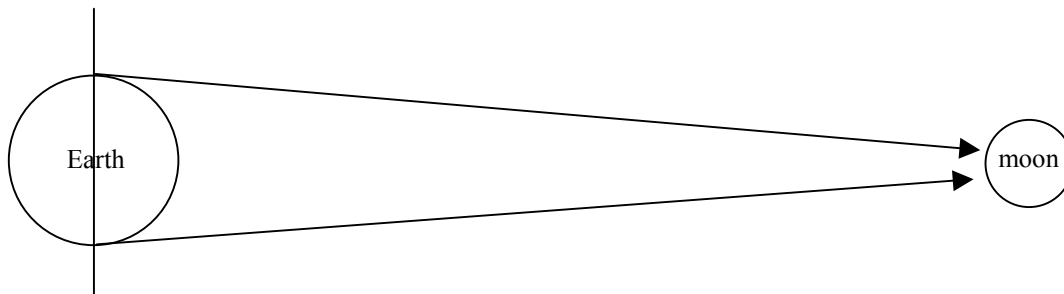
29. Why do Canadian astronauts have to be experts in some scientific field?

Long Answers

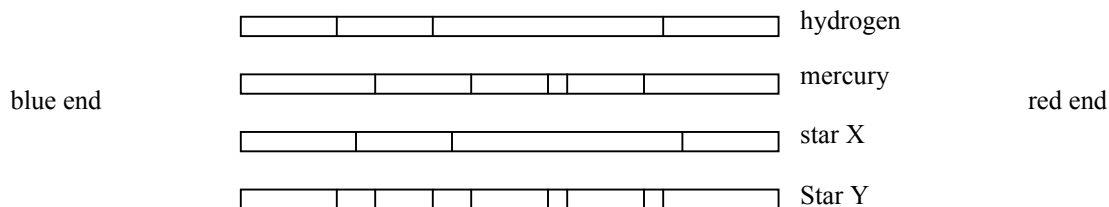
Answer the following questions in full sentences.

30. How did the advances in early technology lead to the change in our view of the universe from a geocentric to a heliocentric point of view?

31. If two groups of students triangulated the distance to the moon from locations on the opposite side of the world (see diagram), what angles would they expect to measure? (NOTE: The Moon is 30 Earth diameters from Earth.)



Use the spectra here to answer the next question.



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32. Explain what the spectra of stars X and Y tell us about these stars.

33. Astronauts must do ordinary things differently in a microgravity environment than they would on Earth. Describe how one ordinary thing is done when in orbit.

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34. There are many things to consider in order to maintain life support for a group of astronauts in space. Describe three of these and explain how to keep the astronauts alive over a time period of three months.
