

**Question 1** ⋮ (1 point)

An eclipse of the sun, can be either total or annular, because

- a. The moon has deep valleys on its surface
- b. The moon has a hole through its center
- c. The moon's orbit is inclined at several degrees to that of the Earth
- d. The moon's distance from Earth varies from eclipse to eclipse

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**Question 2** ⋮ (1 point)

The giant impact theory attributes the origin of the Moon to the impact of a Mars sized body with the Earth. Which of the following is both a true statement and supports the impact theory of Lunar origin

- a. The scar left by the impact can be identified as the Pacific Ocean
- b. The composition of the Moon is similar to Earth's but somewhat different
- c. The impact was the same event that caused the extinction of the dinosaurs
- d. The impacting body sank inward to form the Earth's core

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**Question 3** ⋮ (1 point)

Total Solar eclipses always occur at the time ...

- a. Of new moon.
- b. Of full moon.
- c. Of either equinox.
- d. Of either solstice.

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**Question 4** ⋮ (1 point)

On the day of a lunar eclipse the time of the rising of the Moon is closest to

- a. sunrise

- b. noon
- c. sunset
- d. midnight

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**Question 5** ⋮ (1 point)

Which of the following list of Moon phases is consecutive and in the correct sequence

- a. 1st quarter, waxing crescent, full
- b. 3rd quarter, waxing crescent, new
- c. Waning gibbous, 3rd quarter, waning crescent
- d. Waning gibbous, new , waxing gibbous

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**Question 6** ⋮ (1 point)

During which phase(s) of the Moon is it possible to observe the moon rising one hour after sunset

- a. Waxing Crescent
- b. Waning Crescent
- c. Waxing Gibbous
- d. Waning Gibbous

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**Question 7** ⋮ (1 point)

During which phase(s) of the Moon is it possible to observe the moon crossing the meridian one hour before sunrise

- a. Waxing Crescent
- b. Waning Crescent
- c. Waning Gibbous
- d. Waxing Crescent and Waxing Gibbous

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**Question 8** ⋮ (1 point)

If Aristarchus had made poor quality observations leading him to believe that the duration between third and first quarter moon to be significantly greater during the crescent phases than it is during the gibbous phases, he would have been forced to conclude that ...

- a. Either the Sun is significantly closer to the Earth and the Moon than it really is, or The Moon orbits the Earth more rapidly during the crescent phases than during the gibbous phases
- b. Either the Sun is significantly closer to the Earth and the Moon than it really is, or The Moon orbits the Earth less rapidly during the crescent phases than during the gibbous phases
- c. Either the Sun is significantly further away from the Earth and the Moon than it actually is, or the Moon orbits the Earth more rapidly during the crescent phases than during the gibbous phases
- d. Either the Sun is significantly further away from the Earth and the Moon than it actually is, or the Moon orbits the Earth less rapidly during the crescent phases than during the gibbous phases

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**Question 9** ⋮ (1 point)

In Ptolemy's model of the solar system, the circle on which the centre of the epicycle moved about the Earth was called the

- a. Equant
- b. Eccentric
- c. deferent
- d. parallax

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**Question 10** ⋮ (1 point)

If the metre were to be defined as the distance travelled by light in 10 seconds, which of the following would necessarily be true

- a. A second would need to have a shorter duration than it does with the presently accepted definitions.
- b. A second would need to have a longer duration than it does with the presently accepted definitions.
- c. A light Year would be less than a Kilometre
- d. The speed of light would be less than 1 m/s

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**Question 11** ⋮ (1 point)

Suppose there is a star (not the Sun) which rises at 9 p.m. tonight. At what time will it rise three months from now?

- a. 12 a.m.
- b. 3 a.m.
- c. 6 p.m.
- d. 3 p.m.

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**Question 12** ⋮ (1 point)

The path of the Sun through the fixed stars is called the \_\_\_\_\_.

- a. equinox
- b. meridian
- c. equator
- d. ecliptic
- e. zenith

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**Question 13** ⋮ (1 point)

What is the Approximate right ascension of a full Moon that occurs in late September

- a. 24 hrs. ( 0 hrs)
- b. 6 hrs
- c. 12 Hrs
- d. 18 Hrs

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**Question 14** ⋮ (1 point)

A waxing crescent moon in June could set at which of the following azimuths

- a. azimuth 265 degrees
- b. azimuth 185 degrees
- c. azimuth 275 degrees
- d. azimuth 175 degrees

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**Question 15** ⋮ (1 point)

Which of the following could be the equatorial co-ordinates of a star that rises to the South of East when viewed from Thunder Bay

- a. Declination 60 degrees, Right Ascension 13 hours
- b. Declination 30 degrees, Right Ascension 6 hours
- c. Declination -30 degrees, Right Ascension 1 hours
- d. Declination -60 degrees, Right Ascension 20 hours

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**Question 16** ⋮ (1 point)

What is the sidereal time when the star clock reads 2 O'clock

- a. 4 hours
- b. 5 hours
- c. 7 hours
- d. 17 hours
- e. not enough information is given to determine the sidereal time

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**Question 17** ⋮ (1 point)

What will be the reading on the star clock as seen by an observer in Thunder Bay at 12 AM (midnight) local time on February 7 ?

- a. 14 O'clock
- b. 1:30 O'clock
- c. 7 O'clock
- d. 10:30 O'clock
- e. 2:30 O'clock

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**Question 18** ⋮ (1 point)

What will be the reading on the star clock as seen by an observer in Ottawa at 3 AM local time on April 22 ?

- a. 1:30 O'clock
- b. 20 O'clock
- c. 7 O'clock
- d. 10:30 O'clock
- e. 9:30 O'clock

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