Multiple-choice questions. Mark in completely the ONE BEST answer on your answer sheet.

1. What is the smallest object that contains planet Earth?
   (a) our galaxy  (d) the solar system
   (b) the universe (e) the planet Venus
   (c) the Local Group

2. The visible aspect (what we see) of the galaxy that we live in is called the
   (a) solar system  (d) ecliptic
   (b) vernal equinox (e) light year
   (c) Milky Way

3. Which is largest?
   (a) the Earth    (d) the universe
   (b) the Galaxy  (e) the Sun
   (c) the solar system

4. From the point of view of an observer on the Earth’s surface, which of the following is seen to happen during the course of a day?
   (a) All celestial objects move from east to west, completing a circle centered on one of the celestial poles.
   (b) The Sun makes a complete circle around the sky, moving eastward on the ecliptic.
   (c) The Moon completes a revolution around the Earth.
   (d) The Earth completes a journey around the Sun on its orbit.
   (e) The Earth’s axis of rotation sweeps out a conical surface in space.

5. When the Sun is north of the celestial equator, we in Toledo experience
   (a) the Sun relatively high in the sky at noon
   (b) the Sun relatively low in the southern sky at noon
   (c) relatively long hours of daylight
   (d) relatively short hours of daylight
   (e) two of the above

6. At new Moon, the Moon is (as seen from Earth)
   (a) About 90° from the Sun
   (b) About 180° from the Sun
   (c) About 135° from the Sun
   (d) About 45° from the Sun
   (e) So close to the Sun that it cannot be seen

7. The circle that runs through the north and south celestial poles and through an observer’s zenith is called the
   (a) ecliptic   (d) celestial equator
   (b) equinox    (e) (celestial) meridian
   (c) horizon

8. From the point of view of an observer on the Earth’s surface, at any given time, the celestial sphere is divided into a visible and an invisible half by the
   (a) ecliptic plane   (d) galactic plane
   (b) horizon        (e) zenith
   (c) equatorial plane

9. Two basketballs, A and B, are physically identical, but A is 10 feet away from you and B is 20 feet away. If you measure their angular sizes, you will find that
   (a) the angular size of A is larger
   (b) the angular size of B is larger
   (c) they are the same
   (d) The question is meaningless; it is not possible to measure an object’s angular size.

10. If you face south in Toledo at night, stars directly in front of you are
    (a) rising
    (b) setting
    (c) staying in the same place in the sky all night
    (d) crossing the meridian
    (e) crossing the ecliptic
11. The time needed for the Sun to traverse a complete circle around the sky in its eastward apparent motion with respect to the stars is
   (a) 1 week  (d) 1 year
   (b) 1 day    (e) 6 months
   (c) 1 month
   
12. As seen from Earth, the Moon is always found
   (a) above the horizon
   (b) within 5° of the ecliptic
   (c) precisely on the ecliptic
   (d) within 5° of the celestial equator
   (e) below the horizon during the daylight hours
   
13. A young couple gaze romantically at the full Moon, which is hanging low above the western horizon. What time of day is it?
   (a) just after sunset
   (b) midnight
   (c) just before sunrise
   (d) around noon
   (e) mid-afternoon
   
14. If you can see two or more planets in the sky at one time, they will trace out the location of the
   (a) celestial equator
   (b) ecliptic
   (c) celestial meridian
   (d) zenith
   (e) vernal equinox
   
15. In order for a total eclipse of the Sun to occur,
   (a) the Moon must be full
   (b) the Moon must be new
   (c) the Sun must be at a node of the Moon’s orbit
   (d) the Sun must be crossing the celestial equator
   (e) two of these are correct
   
16. During a solar eclipse, the totally eclipsed Sun is visible from
   (a) anywhere on Earth
   (b) anywhere in the solar system
   (c) a small region of the Earth’s surface
   (d) anywhere on the night side of Earth
   (e) anywhere on the daytime side of Earth
   
17. As seen from Earth, the planet Venus
   (a) is always found less than about 48° from the Sun
   (b) can be found anywhere in the sky
   (c) is never found on the ecliptic
   (d) can be found at any angular distance from the Sun but is always on the ecliptic
   (e) can be seen only when the Sun is above the horizon
   
18. In what general part of the sky should you least expect to see the planet Mars in Toledo?
   (a) south
   (b) east
   (c) west
   
19. Apparent retrograde motion (as seen in our sky) is caused by Mars, Jupiter, or Saturn
   (a) stopping and moving backwards in its orbit
   (b) overtaking the Earth
   (c) being overtaken by the Earth
   (d) crossing the celestial equator
   (e) circling the north celestial pole
   
20. A light year is
   (a) any year that is not a leap year
   (b) 365 days
   (c) the distance light travels in one year
   (d) the average distance from the Sun to the Earth
   (e) the time it takes light to travel from the Sun to the Earth