SELF TEST  UNIT 3

1. The position of the sun at noon (locally) is on the _________________.

2. When the sun transits, the time locally is _________________.

3. When the sun is at lower transit, the time is _________________.

4. The apparent yearly path of the sun relative to the stars is called the _________________.

5. Through what constellations does the sun pass during a year? _________________.

6. The direction of the sun’s annual motion during the year relative to the stars is ________________, 1° per day.

7. Every hour, the sun seems to move ______ per hour to the ________ (direction).

8. Fill in the blanks.

| *Vernal Equinox | Date | Right Ascension | Declination | Constellation |
| *Summer Solstice | | | | |
| *Autumnal Equinox | | | | |
| *Winter Solstice | | | | |

* For the northern hemisphere

9. On the diagram below place the earth at the proper location for June 21. Place an individual at the correct location if the time of day is noon and draw in the celestial meridian. Next, draw and label the angle representing the sidereal time.
10. The present first sign of the zodiac is ____________________.

11. __________________ discovered precession. The rate is about ______ per year westward.

12. The period of precession is ________________________.

13. The present “age” as determined by the first sign of the zodiac is ____________.

14. The next “age” will be ________________________.

15. Each age lasts about ________________ years.

16. The position of the north celestial pole changes due to ________________________.

17. The moon’s monthly motion is about __________ degrees (east or west) per day.

18. The moon will rise on the average _______ minutes _________ (later, earlier) each day.

19. The sidereal period of the moon is ______________ while its synodic period is ____________________.

20. The moon’s path can be as much as ______ degrees from the ecliptic.

21. Name the phases by filling in the blanks.

22. It is sunset and you notice that the moon is in transit. What phase must the moon be? ________________.

23. It is sunrise and you notice that the moon is setting. What phase must the moon be? ________________.

24. You see a waxing gibbous moon rising. What is the approximate time of the day? ________________.

25. A ______________ eclipse can occur at new moon.

26. A ______________ eclipse can occur at full moon.

27. A “ring of fire around the moon” eclipse is better known to astronomers as an ______________ eclipse.
28. The moon is primarily responsible for the tides. What other object has an effect on the tides? ________________.

29. The most severe tides (highest high tide and lowest low tide) are called ______________ tides.

30. ______________ tides occur at first and last quarter moon.

31. If the full moon transits at midnight, where will it be relative to the celestial meridian in an hour (1:00 a.m.)? ________________.

32. The moon crosses the ecliptic at points called ________________.

33. The annual motion of the planets is close to what celestial circle? ________________.

34. Which planets were found by methodical searches? ________________.

35. Which planet(s) are found in the sky tonight before midnight? ________________.

36. The periodic westward motion of Mars is called ________________ motion.

37. Match the following.

   ____  Earth   Sun    Venus  
   Mars    Earth    Sun  A. opposition
   Earth    Venus    Sun  B. inferior conjunction

38. A superior (outer) planet will retrograde once every ________________ period.

39. Venus has a maximum elongation of about ____________ degrees.

40. Place the appropriate letters in the blanks.

   ____  Retrograde motion
   ____  Direct motion
   ____  Stationary points
41. Check all that apply.

In the middle of retrograde, a superior planet ...
   ______ is furthest from Earth
   ______ shines at minimum brilliance
   ______ appears to have the largest angular diameter
   ______ shines at maximum brilliance
   ______ is closest to Earth
   ______ has the smallest angular diameter.

Sample essay questions:
1) Define and explain the cause and effects of precession.
2) Explain why the sun has an annual motion.
3) Why is the ecliptic at an angle relative to the celestial equator? Explain.
4) Why is the synodic period of the moon different than the sidereal period?
   Diagrams are often helpful.
5) Explain what conditions are necessary to see an annular eclipse.
6) Explain in detail what conditions are necessary for neap and spring tides
   and why these conditions cause a difference in the tides.
7) Explain why we see retrograde motion.
8) Which planet has the longest synodic period? Explain Why.