GENERAL ASTRONOMY PRE-TEST

Name ______________________________________

Please answer all of the questions on this test using pencil or pen. In some cases, there may be more than one correct answer. However, each question has only one best answer. Choose the single best answer from the five choices for each question. Circle the letter next to your choice. If you change an answer, be sure to thoroughly erase or cross out your original choice.

1. If you see the Sun is high in the sky, what can you say about the Sun as viewed from the opposite side of the Earth at the same moment?
   a. The Sun is high in the sky there, too.
   b. The Sun is low in the sky.
   c. The Sun is not visible.
   d. The Sun is farther to the west.
   e. The Sun is farther to the east.

2. Imagine a camera that automatically points to the Sun. Taking pictures over the course of one day, the camera will most likely:
   a. not move at all.
   b. always point lower in the sky.
   c. will start the day by pointing lower and end the day by pointing higher in the sky.
   d. will move slowly all day, lower to higher and then back to lower.
   e. will move quickly from lower to higher several times.

3. Which of the following best describes the order of size, from smaller to larger, of the following objects:
   a. Earth, Moon, Sun, Jupiter
   b. Moon, Earth, Sun, Jupiter
   c. Moon, Earth, Jupiter, Sun
   d. Sun, Moon, Earth, Jupiter
   e. They are all the same size

4. An astronomer would say that most stars are:
   a. about the same age.
   b. nearly the same size.
   c. approximately the same brightness.
   d. made of mostly the same substances.
   e. about the same surface temperature.

5. Which answer shows the most accurate pattern of the three objects in order from closest object to the Earth to farthest from the Earth?
   a. Space Shuttle in orbit → Stars → Pluto
   b. Pluto → Space Shuttle in orbit → Stars
   c. Stars → Space Shuttle in orbit → Pluto
   d. Stars → Pluto → Space Shuttle in orbit
   e. Space Shuttle in orbit → Pluto → Stars

6. The primary source of energy for stars is:
   a. nuclear reactions.
   b. chemical reactions.
   c. the burning of carbon.
   d. the convection of molten rock.
   e. the heat left over from the Big Bang.

7. Shawna sees a thin crescent Moon in the sky. How long must she wait until the Moon is full?
   a. A few minutes
   b. A few hours
   c. A few nights
   d. More than a few nights
   e. The crescent Moon will never change.

8. If there are no clouds in the sky, how often can you see the Moon at midnight?
   a. It can always be seen at midnight.
   b. It can often be seen at midnight.
   c. It can occasionally be seen at midnight
   d. It can never be seen at midnight.
   e. The Moon is visible at midnight only in winter.

9. Pedro sees the Moon exactly above a flagpole outside his bedroom window, as seen in this picture.

   Which picture below best shows what Pedro would see if he looked again a few hours later?

   A  B  C  D  E

10. Imagine the Earth had no air, rain, or clouds. What would the temperatures be like during the night?
    a. Temperatures at night would be the same.
    b. The night would get much hotter.
    c. The night would get much colder.
    d. The night would only warm up at the North and South Poles.
    e. There would not be any night.

11. Jason can see Mars in the night sky and Mars appears to be reddish. Jason wonders if he can see colors in stars also. Which one of the following statements would be the best explanation for what Jason could see?
    a. Only planets have colors.
    b. All stars look red.
    c. All stars look white.
    d. All stars look yellow.
    e. Stars are not all the same color.
12. Cathy goes outside on a clear, dark night. Which picture below best represents the arrangement of visible stars that Cathy sees across the sky?

A. 

B. 

C. 

D. 

E. 

13. Of the following choices, which looks most like the Earth's path around the Sun?

A. 

B. 

C. 

D. 

E. 

14. How much farther away would the Sun have to be to look like a star at night?
   a. Ten times farther.
   b. One hundred times farther.
   c. One thousand times farther.
   d. Many thousand times farther.
   e. The Sun will always look different than a star no matter how far away.
15. Scientists explain that we have night and day because:
   a. the Sun goes out.
   b. the Earth moves around the Sun.
   c. clouds block out the Sun's light.
   d. the Earth turns on its axis.
   e. the Sun goes around the Earth.

16. An eclipse of the Moon can only occur:
   a. when the Moon passes between the Earth and the Sun.
   b. when the Sun passes between the Earth and the Moon.
   c. when the Earth passes between the Sun and the Moon.
   d. when the Moon is closest to the Earth.
   e. when the Moon is farthest from the Earth.

17. In which of the following is a person not under the influence of gravity?
   a. Cresting the top of a hill in a roller coaster.
   b. Skydiving.
   c. Inside the space shuttle orbiting the Earth.
   d. Standing in an elevator going down.
   e. We are always under the influence of gravity.

18. Which of the following is most responsible for the Earth's oxygen rich atmosphere?
   a. Comets
   b. Animals
   c. Rocks
   d. Plants
   e. Volcanoes

19. If you went outside at midnight and looked at the stars and looked again at midnight one year later, the patterns made by the stars would be:
   a. the same.
   b. slightly changed.
   c. greatly changed, but still recognizable.
   d. completely different.
   e. It is impossible to say what you would see because the patterns of stars change every night.

20. Astronomers use large telescopes so they can:
   a. see fainter objects.
   b. see distant objects.
   c. see more objects.
   d. All of the above.
   e. None of the above.
21. When Miguel looks at the “bowl” of the Big Dipper, he doesn’t see any stars inside the bowl. What do you think he will see if he looks at the bowl through a telescope?
  a. No stars.
  b. The North Star.
  c. Some stars.
  d. Both (b) and (c).
  e. You can only look at the Moon with a telescope.

22. You go outside one night at 10 p.m. and see the planet Saturn high in the sky surrounded by stars as shown below.

If you went outside again at 10 p.m. one year later, what would you see?
  a. Saturn at position A, as shown below.
  b. Saturn at position B, as shown below.
  c. Saturn at position C, as shown below.
  d. Saturn would no longer be visible.
  e. You cannot see planets with just your eyes.
23. Which answer shows a pattern in the order from having the fewest stars to having the most stars?
   a. galaxy → universe → solar system
   b. galaxy → solar system → universe
   c. solar system → universe → galaxy
   d. solar system → galaxy → universe
   e. universe → solar system → galaxy

24. A light year is a measure of:
   a. time.
   b. distance.
   c. solar intensity.
   d. mass.
   e. gravitational attraction.

25. An astronomer would say that most stars produce energy in the same way as:
   a. a wood fire.
   b. molten rock.
   c. a hydrogen bomb.
   d. a chemical reaction between two gases.
   e. a welding torch.

26. The "Big Bang" refers to the origin of:
   a. the Sun.
   b. the Earth.
   c. our solar system.
   d. the Milky Way galaxy.
   e. the universe.

27. Which of the following would scientists say is true about most galaxies?
   a. They are moving away from each other.
   b. They are spread evenly throughout space.
   c. They consist only of stars.
   d. They are held together by electromagnetism.
   e. They do not change with time.

28. Astronomers say that the present structure of the universe is the result of the:
   a. electrical force.
   b. magnetic force.
   c. strong nuclear force.
   d. weak nuclear force.
   e. gravitational force.

29. Astronomers say that the Big Bang produced:
   a. hydrogen and helium.
   b. carbon and oxygen.
   c. aluminum and iron.
   d. the radioactive elements.
   e. all of the elements.
30. According to scientists, stars were created:
   a. at the time of the Big Bang.
   b. at many different times.
   c. at the same time as the Earth.
   d. all at the same time, but before the Earth.
   e. Stars were not created, they were always here.

31. Stars can be sources of:
   a. energy.
   b. the element carbon.
   c. the element oxygen.
   d. More than one of the above.
   e. None of the above.

32. Which of the following would scientists say is true about the universe?
   a. The universe started out very cold and is getting hotter with time.
   b. The universe started out very dense and has become less dense with time.
   c. The universe is the same age as the Earth.
   d. The universe and our galaxy are the same thing.
   e. The universe does not change with time.

33. Astronomers say life would not exist on Earth were it not for:
   a. the Big Bang.
   b. nuclear fusion.
   c. exploding stars.
   d. the Sun.
   e. All of the above.

34. Our solar system:
   a. was formed by the Big Bang.
   b. contains material from other stars.
   c. contains the oldest star in the universe.
   d. was made from meteors exploding.
   e. is made from materials found nowhere else in the universe.

35. In their laboratories, scientists have studied samples astronauts brought back from:
   a. the Moon.
   b. Jupiter.
   c. Mars.
   d. None of the above.
   e. More than one of the above.

36. A photon of which color light carries the most energy?
   a. Red light
   b. Yellow light
   c. Green light
   d. Blue light
   e. All photons have the same energy.
37. What is your gender?
   a. Female     b. Male

38. ______ In the space to the left, enter the total years you have taught in a school setting.

39. ______ In the space to the left, enter the total years you have taught astronomy.

40. What is the highest degree you have earned (including 'degree plus,' e.g., master's +30)?

41. What grade level (e.g., 8, 9, 10, etc.) have you taught most often in your teaching career?

42. At which grade level(s) do you teach astronomy? Do you teach astronomy as part of another course, e.g., earth science, or as a separate course?

43. List below your areas of teacher certification. If you are not certified, please indicate your status (e.g., waiver, permanent substitute, etc.).