

Name: _____

Location: _____

- 1) The main (biggest) object pictured here is a(n)



- a. Star b. Planet c. Volcano d. Galaxy e. Ion

- 2) Write a number, any number, any number and you win (or at least get the points for this question.) I'll accept any number, any number at all, a 1 or a 2 or a 3 or how about a 4. I know you can do this.

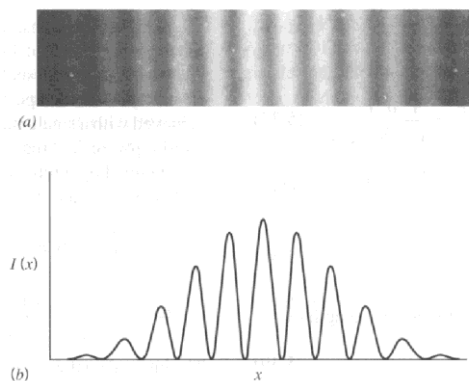
[END OF MATH]

- 3) Professor Black showing you the video of the exploding watermelon, so you could see what happened, was an example of which step in the scientific method?
- a. Observe b. Question c. Predict d. Test predictions
e. Draw a conclusion
- 4) Which planet from our Solar System is furthest from the sun?
- a. Mercury b. Saturn c. Neptune
d. That planet in "The Hitchhiker's Guide to the Galaxy"

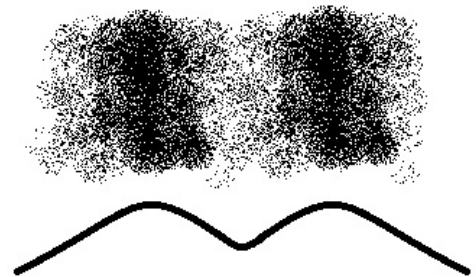
- 5) Protons are
 a. Positive b. Negative c. Neutral d. Yellow
- 6) The same water balloon launcher throwing a water balloon 50 feet, but a steel ball only 3 feet is an example of
 a. Newton's 1st Law b. Newton's 2nd Law c. Newton's 3rd Law
 d. Newton's Law of Cooling
- 7) There are two forces which must be in balance in a star. One is a repulsive force (a force which pushes things apart) which comes when the nuclei of atoms smash together and join to form bigger atomic nuclei. What is the other force called?
 a. Gravity b. The Electromagnetic Force c. Kinetic Energy d. Light
- 8) Which of the following is not testable?
 a. Metal can be levitated by putting it in a magnetic field
 b. All matter inside a black hole becomes purple
 c. The Earth is round
 d. $F = ma$

For the next problem, you will refer to the following two images. Only one could result from the experiment described in the next problems. Put the Roman numeral (i or ii) corresponding to the correct image as your answer.

9) i.



ii.



- a. Bullet holes from a machine gun going through two slits.
- b. A wave going through two slits
- c. Electrons being shot though two slits when we DON'T have any way of telling which slit each went through.
- d. Water waves going through two slits.
- e. Spray paint going through two slits.

10) Name ten elements, and give a characteristic of each

- i. _____
- ii. _____
- iii. _____
- iv. _____
- v. _____
- vi. _____
- vii. _____
- viii. _____
- ix. _____
- x. _____

11) Which is the biggest?

- a. Observable universe b. Planet c. Big Mac d. Star

12) Which is on the x-axis for the Hertzsprung-Russell Diagram?

- a. Luminosity b. Size c. Number of planets d. Temperature

13) Which is on the y-axis for the Hertzsprung-Russell Diagram?

- a. Luminosity b. Size c. Number of planets d. Temperature

- 14) Which of the following is NOT evidence of plate tectonics?
- a. Similar fossils on either side of the Atlantic Ocean
 - b. Evidence of glaciation in Australia and India
 - c. The tilt of the Earth
 - d. The way in which it appears that the coast of South America could “fit into” the coast of Africa

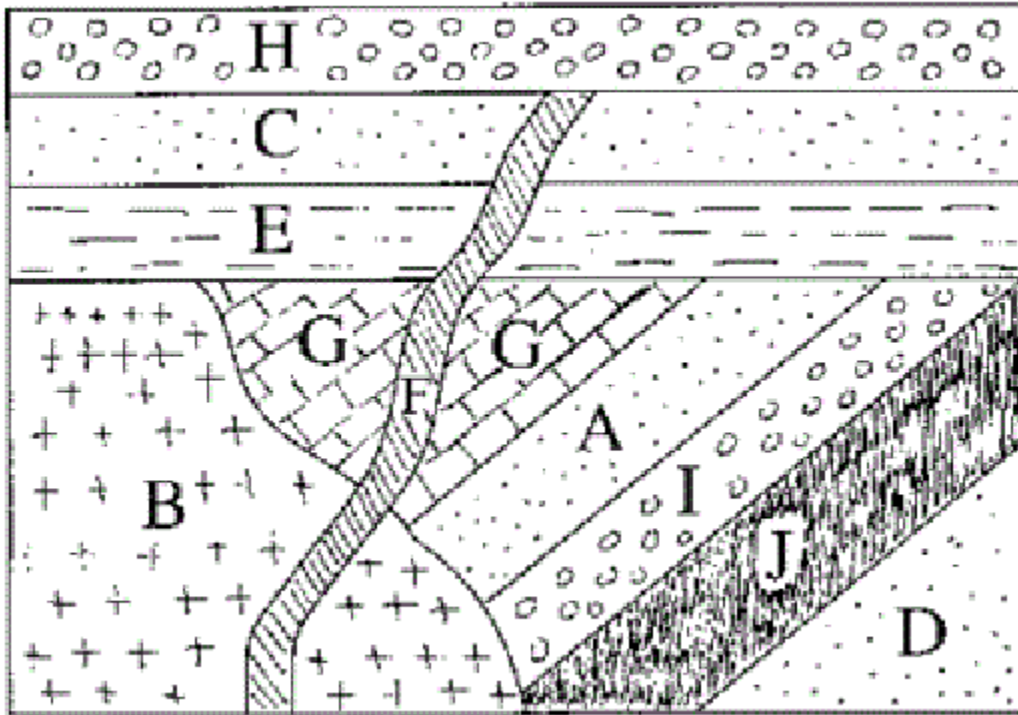
15) Draw a diagram with the Sun, Earth, and Moon that could represent a solar eclipse.

- 16) Come up with a better name for this geologic formation than “white shirt.”



- 17) Which kind of rock is formed when magma cools and hardens (solidifies?)
- a. Igneous
 - b. Metamorphic
 - c. Classic
 - d. Sedimentary

18) The only geologic formation younger than the dike, “F” is



- a. H b. I c. D d. J e. B

19) Chemistry is

- a. The study of planets, stars, galaxy, and the large-scale universe
- b. The study of how atoms interact
- c. The study of rocks and minerals as well as how our planet is shaped
- d. The study of energy, motion, and the mathematical principles that govern events

20) Write the letter that corresponds to the places where it is day and where it is night in the following diagram



It is day on the half next to the letter, _____. It is night on the half next to the letter, _____.

- 21) For the next few pictures, give a possible explanation for how these geological features might have formed. You won't be graded on whether or not you give the scientifically-accepted reason, but you will be graded on whether or not your answer shows a knowledge of things that shape the Earth's surface.
- These holes that you see in the sidewalk. (Hint, look for something that they have in common, or something that's "in" all of them. There's something in your book with a picture of something similar, as well.)



b.



c.

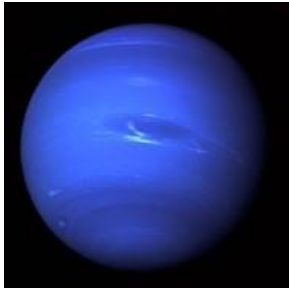


22) Here are pictures of each of the planets. Give the name of the pictured planet, then tell me two facts about it.

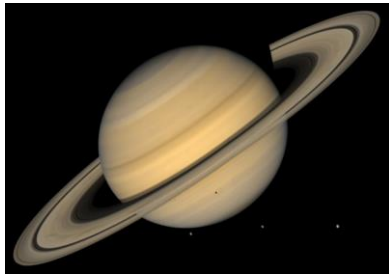
a.



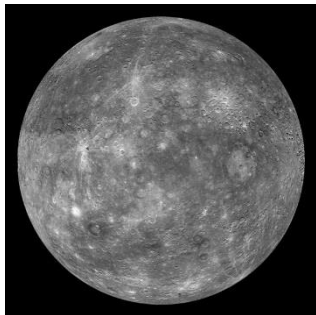
b.



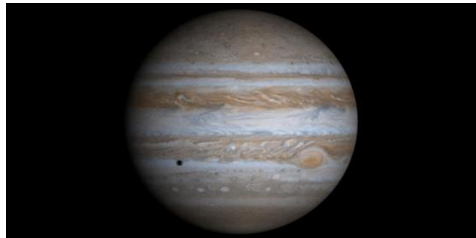
c.



d.



e.



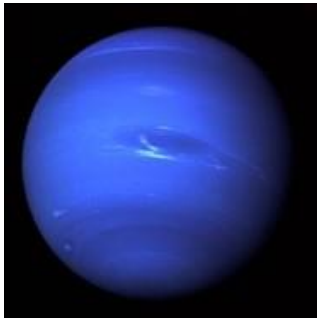
f.



g.



h.

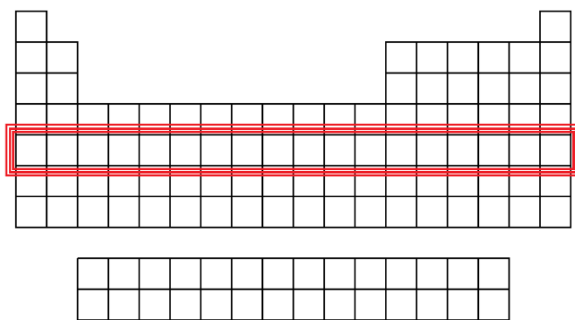


i. Name a dwarf planet

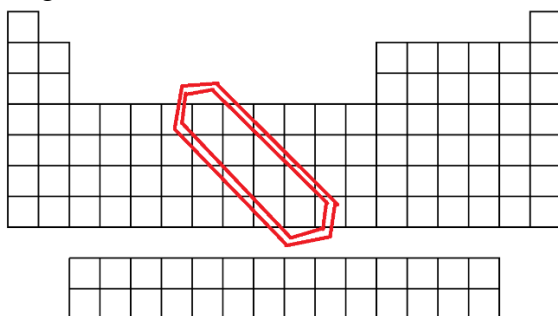
23) Here's a question for which you can talk in class. I don't know the answer yet, but I'm excited to find out: If you ask Faith what her favorite letter is, what will she say?
If you're not able to talk with Faith, your question is: If you ask your facilitator/supervisor what his/her favorite color is, what will he/she say?

24) Elements in the periodic table which are in the same _____ often have similar properties. (An example of what each word represents is highlighted, so the elements inside the “highlighted thing” should be similar.)

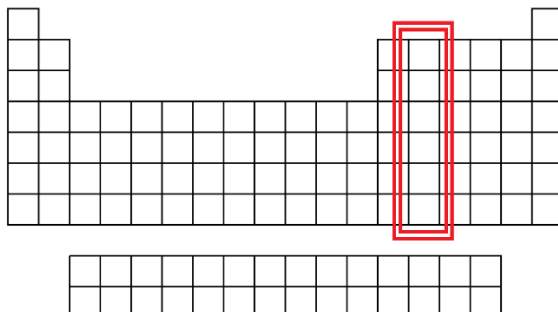
a. Row



b. Diagonal



c. Column



d. Spiral pattern



25) What is the name of this class?

- a. Advanced General Relativity
- b. Organic Chemistry
- c. Interdisciplinary Physical Science
- d. Intro to Painting

26) Draw the basic positions of the Earth, moon, and sun for the following phases of the moon.

a. Waxing gibbous

b. Last Quarter

c. New Moon

27) Quantum mechanics is:

a. weird

b. the use of such formal mathematics as wave equations, matrices, and ultimately tensors and path integrals to describe the behavior of all matter, but especially of the smallest particles

c. a theory brought forward and developed in the late 1910's and early 1930's that finally brought a mathematical explanation to the behavior of electrons and thus the periodic table

d. usually taught in the third or fourth year of a physics major course

e. all of the above

f. If you didn't pick "e", please go back and pick "e."

28) Briefly describe a black hole.

- 29) The lake pictured below consists of a ring of water about 60 miles across, and it's about 200 million years old. Scientists would tell us that it was probably formed by



- a. Aliens b. A meteorite c. Canadian nuclear tests d. A volcano

- 30) Write a question that you think should have been on this final, and then answer it.

Question:

Answer:

31) Tell me a few things about the class:

- a. Two or three things about this class which were the most surprising.

- b. Something you learned in this class that you had always wanted to know.

- c. Two or three questions that you still have.

HAVE A GREAT HOLIDAY!