Science Bowl Mixed Questions Set #2

1. Toss Up: Math Short Answer - What is the sum of the numbers in the 6th row of pascal’s triangle?  
Answer - 64  
  
BONUS: Math Short Answer - What is the axis of symmetry of the parabola y= 15X2 + 4X + 13?  
Answer - x=2/15   
  
  
2. Toss Up: Math Short Answer - In what number base does 1 + 2 = 10  
Answer - Base 3  
  
BONUS: Math Short Answer - What is the significant figure answer of 4.22 x 3.4?  
Answer - 14.3  
  
  
3. Toss Up: Math Multiple Choice - What is the name for the radius of a circle that can be inscribed in any regular polygon?

w.) apothem

x.) tangent

y.) radius

z.) altitude

Answer - w.) apothem  
  
BONUS: Math Short Answer - In an ellipse what is the longest diameter that runs through both the foci?  
Answer - Major Axis  
  
4. Toss Up: Math Short Answer- What trigonometric function equals the length of the adjacent side divided by the length of the hypotenuse?  
Answer - Cosine  
  
BONUS: Math Multiple Choice - What quadrilateral has two parallel sides and two not parallel but always congruent side?  
 w.) parallelogram   
 x.) rectangle   
 y.) trapizoid  
 z.) triangle  
Answer - y.) trapizoid  
  
  
5. Toss Up: Math Short Answer - A cat has eight kittens and each of those kittens grow up to have eight kittens. If this pattern continues, how many cats will be there after the fourth generation of kittens are born? (assume that none of the cats have died)  
Answer - 513 cats   
  
BONUS: Math Short Answer - What is the shortest positive integer that is exactly divisible by 2,3,4,5 and 6?  
Answer - 60  
  
  
6. Toss Up: Chemistry Multiple Choice - Who was the first American Chemist to receive a Nobel Prize, for his precise determination of atomic weights.   
 w.) Charles Nobel  
 x.) Anton Leeuwenhoek   
 y.) Marie Curie  
 z.) Theodore Richards  
Answer - z.) Theodore Richards  
  
BONUS: Chemistry Short Answer - Which noble gas has the lowest atomic weight?  
Answer - Helium  
  
  
7. Toss Up: Chemistry Multiple Choice - What is the name of group sixteen of the periodic table?  
 w.) The Carbon Family   
 x.) The Pnictogens or the Nitrogen Family   
 y.) The Chalcogens or the Oxygen Family  
 z.) The Halogens or the Fluorine  
Answer - y.) The Chalcogens or the Oxygen Family  
  
BONUS: Chemistry Multiple Choice - Who is the found the element Francium in 1939, while studying the radioactive decay of actinium?  
 w.) Marie Curie   
 x.) Pierre Curie   
 y.) Henri Becquerel   
 z.) Marguerite Perey  
Answer - z.) Marguerite Perey  
  
  
  
  
  
  
8. Toss Up: Chemistry Multiple Choice: Which of the following metals reacts most violently with water?  
 I.) Hydrogen  
 II.) Lithium  
 III.) Iron  
 IV.) Cesium  
Answer - IV.) Cesium  
  
BONUS: Chemistry Short Answer: By mass what is the most common element in the universe?  
Answer - Hydrogen   
  
  
9. Toss Up: Chemistry Multiple Choice: Which radioactive element was the first to be discovered by Marie Curie in ?  
 w.) Uranium  
 x.) Francium  
 y.) Radium  
 z.) Radon  
Answer - y.) Radium  
  
BONUS: Chemistry Short Answer - What is the chemical formula for thiosulfate  
 w.) S4O54-  
x.) S3O43-  
y.) S2O32-  
z.) S1O21-  
Answer - y.) S2O32-  
  
  
10. Toss Up: Chemistry Short Answer - Mayonnaise is which of the following:  
 w.) an element  
 x.) a hydrogenated oil  
 y.) a formula unit  
 z.) an emulsion  
Answer - z.) an emulsion  
  
BONUS: Chemistry Multiple Choice - Which element did Johan Gadolin Discover in 1789?  
 w.) Cadmium  
 x.) Tellurium   
 y.) Ytterbium  
 z.) Dysprosium  
Answer - y.) Ytterbium  
  
  
11. Toss Up: Earth/Astro Short Answer - Solidified lava belongs to what rock family?  
Answer - Igneous  
  
BONUS: Earth/Astro Short Answer - What gas is most common in our atmosphere?  
Answer - Nitrogen   
  
  
12. Toss Up: Earth/Astro Short Answer - What two gases are most common in the atmosphere of Saturn?  
Answer - Hydrogen and Helium  
  
BONUS: Earth/Astro Multiple Choice - What is the diameter of the sun in km?  
 w.) 1, 391 km  
 x.) 13, 910 km  
 y.) 139, 100 km  
 z.) 1, 391, 000 km  
Answer - z.) 1, 391, 000 km  
  
  
13. Toss Up: Earth/Astro Short Answer - What percent of the earth’s atmosphere is diatomic oxygen?  
Answer - 21%  
  
BONUS: Earth/Astro Short Answer - What is the outermost layer of the sun?  
Answer - Corona  
  
  
14. Toss Up: Earth/Astro Multiple Choice - What percent of the energy used in the United States is provided by Hydroelectric power?  
 w.) 4%

x.) 12%

y.) 29%

z.) 60%’

Answer - w.) 4%   
  
BONUS: Earth/Astro Short Answer - What type of volcano is composed of mainly pyroclastics?  
Answer - Cinder Cone  
  
15. Toss Up: Earth/Astro - What is the average yearly rainfall for the United States in centimeters?  
Answer - 75 cm  
  
BONUS: Earth/Astro Multiple Choice- Approximately how long ago did the supercontinent Pangea split into Laurasia and Gondwana?  
 w.) 200,000 years ago  
 x.) 2 million years ago  
 y.) 20 million years ago  
 z.) 200 million years ago  
Answer - z.) 200 million years ago  
  
  
16. Toss Up: Physics Multiple Choice - Electric current may be expressed in which of the following units?  
 w.) coulombs/volt  
 x.) Joules

y.) ohms/second

z.) coulombs/second’

Answer - z.) coulombs/second’  
  
BONUS: Physics Multiple Choice - 1 Newton is equal to which of the following?  
 w.) kg-m/s  
 x.) m/s2  
 y.) kg-m/s2  
 z.) kg/m-s  
Answer - y.) kg-m/s2  
  
  
17. Toss Up: Physics Short Answer - A boy is standing on an elevator which is traveling downward with a constant velocity of 30 meters per second. The boy throws a ball vertically upward with a velocity of 10 meters per second relative to the elevator. What is the velocity of the ball relative to the elevator shaft the instant the boy releases the  
ball?   
Answer - 20 m/s down  
  
BONUS: Physics Short Answer - In kg/m3, what is the density of a sample of a metal that weighs 60N in air and 40N underwater?  
Answer - 3000 kg/m3  
  
  
  
18. Toss Up: Physics Short Answer - In meters per hour what is the speed of light?  
Answer - 1,079,252,848,800 meters per hour  
  
BONUS: Physics Multiple Choice - What is the speed of sound at sea level?  
 w.) 168.88 m/s

x.) 340.29 m/s

y.) 1222.99 m/s

z.) 2341.83 m/s

Answer - x.) 340.29 m/s  
  
  
19. Toss Up: Physics Short Answer - How many quarks make up a neutron?  
Answer - 3 quarks  
  
BONUS: Physics Short Answer - If the half-life of a radioactive isotope is 2 days, in how many days will the isotope be reduced to 12.5% its original amount?  
Answer - 6 days  
  
20. Toss Up: Physics Short Answer - If the distance between the two bodies is doubled, the gravitational force between the bodies will become what portion of the original force?  
Answer - ¼   
  
BONUS: Physics short answer - A 2 farad and a 4 farad capacitor are connected in parallel. What single capacitance is equivalent to this combination?  
Answer - 6 farads  
  
  
21. Toss Up: Biology Multiple Choice - What scientist is considered the father of paleontology?  
 w.) George Cuvier  
 x.) Andreas Vesalius  
 y.) Jacque Tonnies  
 d.) Galen  
Answer - w.) George Cuvier  
  
BONUS: Biology Short Answer - What organelle breaks down waste, collects cellular debris and is only found in an animal cell?  
Answer - Lysosomes   
22. Toss Up: Biology Short Answer - Which German friar experimented on pea plants and is now known as the father of genetics?  
Answer - Gregor Mendel  
  
BONUS: Biology Short Answer - What word is used to describe the appearance of an individual without regard to its hereditary constitution?  
Answer - Phenotype  
  
  
23. Toss Up: Biology Multiple Choice - What organelle is responsible for the production of proteins in all living things?  
 w.) vacuole   
 x.) golgi body  
 y.) ribosomes   
 z.) autosomes  
Answer - y.) ribosomes   
  
BONUS: Biology Multiple Choice - What is the process by which an amino acid loses its amino group?  
 w.) Hydration  
 x.) Dehydration  
 y.) Amination  
 z.) Deamination  
Answer - z.) Deamination  
  
  
24. Toss Up: Biology Short Answer - What carbohydrate is most common in plants?  
Answer - Cellulose  
  
BONUS: Biology Short Answer - What is the central organ of the flower, usually consisting of a style stigma and ovary called?  
Answer - Pistil  
  
25. Toss Up: Biology Multiple Choice - What is the theory that living things can appear from non-living things?  
 w.) evolution  
 x.) biosynthesis  
 y.) spontaneous generation  
 z.) ethology  
Answer - y.) spontaneous generation  
  
  
BONUS: Which of the following organs to the pulmonary arteries supply blood to?  
 w.) Heart  
 x.) Lungs  
 y.) Brain  
 z.) Pancreas  
Answer - x.) Lungs