**Lightning Round Question Set #3**  
  
  
1. Biology - Multiple Choice: What is the organ in a fish’s body that lets it control its buoyancy?  
w. Operculum  
x. Swim Bladder  
y. Pericardial Cavity  
z. Myromeres  
Answer - x. Swim Bladder  
  
2. Biology - Short Answer: What is the reflexive extension of the leg resulting from a sharp tap on the patellar tendon called?  
Answer - Patellar reflex  
  
3. Biology - Short Answer: What type of muscle is found in the myocardium of the heart?  
Answer - Cardiac  
  
4. Biology - Multiple Choice: What part of the eye is the transparent gelatinous mass that is located in the space between the lens and the retina?  
w. Posterior Chamber  
x. Zonular Fibers  
y. Sclera  
z. Vitreous Humor  
Answer - z. Vitreous Humor  
  
5. Biology - Multiple Choice: In a neuron, what part sends electrical signals to the cell body?  
w. Myelin  
x. Presynaptic Terminal  
y. Dendrite  
x. Axon  
Answer - y. Dendrite  
  
6. Chemistry - Short Answer: What is 123454321 in five significant digits?  
Answer - 123,450,000  
  
7. Chemistry - Short Answer: How many Joules does it take to heat up 100g of water from 2°C to 52°C, assuming the specific heat of water is 4.184 J/g°C.  
Answer - 20920 J  
  
8. Chemistry - Short Answer: What is the name of the person that developed a table of elements in which elements are grouped with elements of similar properties?  
Answer - Dimitri Mendeleev    
  
9. Chemistry - Multiple Choice: What is the maximum amount of electrons that can occupy an *s* orbital?  
w. 2  
x. 4  
y. 6  
z. 8  
Answer - w. 2  
  
10. Chemistry - Which of the following are general properties of Hydroxide bases in aqueous solutions?  
1. High solubility  
2. Bitter taste  
3. Ability to neutralize aqueous solutions  
4. Ability to change phenolphthalein from colorless to red  
Answer - 2,3,4  
  
11. Physics Short Answer - What is the SI unit of capacitance?  
Answer - Farad  
  
12. Physics Short Answer - What is a radian per second a unit of?  
Answer - Angular Velocity  
  
13. Physics Short Answer - If 10N of upward force is acted on a 30kg box, then 10N of downward force is acted on the same box, what is the net force acted on the box.  
Answer - 0N  
  
14. Physics Multiple choice - Which of the following are closely related with a non-magnetic phase diagram?  
1. Boiling point   
2. Curie point  
3. Solidus  
4. Liquidus Curves  
Answer - 1,3,4  
  
15. Physics Multiple Choice - What is the fundamental force in nature, where a particle is associated with electromagnetivity?  
w. Gravitation  
x. Photon  
y. Glucon  
z. None of the Above   
Answer - x. Photon  
  
16. Math Short Answer - What conic section is found in the form   
y2/a2 + x2/b2 = 1   
Answer - ellipse  
  
17. Math Short Answer - What is the surface area of a sphere with the radius *r*.   
Answer - 4 x pi x r2  
  
18. Math Short Answer - What type of polynomial is the equation x2+2x-72=0  
Answer - Trinomial  
  
19. Math Multiple Choice - In terms of the number 1 what is the imaginary number i2345?  
w. sqrt(-1)  
x. 1   
y. - sqrt(1)  
z. -1  
Answer - w. sqrt(-1)  
  
20. Math Short Answer - If a runner runs east 4 miles, north 12 miles, east 4 miles and south 6 miles what is the magnitude of displacement?  
Answer - 10 miles  
  
21. Earth/Astro Multiple Choice - What is the only known natural satellite in our solar system to have an atmosphere similar to that of earth?  
w. Io  
x. Titan  
y. Encledus  
z. Dione  
Answer - x. Titan  
  
22. Earth/Astro Multiple Choice - What galactic supercluster does the milky way galaxy belong to?  
w. Hydra Supercluster  
x. Hercules Supercluster  
y. Virgo Supercluster  
z. Ophiuchus Supercluster  
Answer - y. Virgo Supercluster  
  
  
  
  
  
  
23. Earth/Astro Multiple Choice: What is the atmosphere of Jupiter’s moon Io primarily composed of?  
w. Sulfur Dioxide  
x. Carbon monoxide  
y. Argon  
z. Nitrogen   
Answer - w. Sulfur Dioxide  
  
24. Earth/Astro Multiple Choice: What is approximate surface area of our sun?  
w. 6.09 x 1018 m2  
x. 4.27 x 1016 m2  
y. 1.45 x 1014 m2  
z. 7.48 x 1013 m2  
Answer - w. 6.09 x 1018 m2  
  
25. Earth/Astro Multiple choice- What is true about primary waves?  
1. Primary waves are body waves  
2. Primary waves are slower than secondary waves  
3. Primary waves can pass through liquids  
4. Primary waves travel like sound waves  
Answer - 1,2,3