2015 Pizza Bowl Meteorology Exam

Name _____

Favorite Pizza Toppings Top 3 _____ _____ _____

Please don't put these on my pizza toppings _____ _____

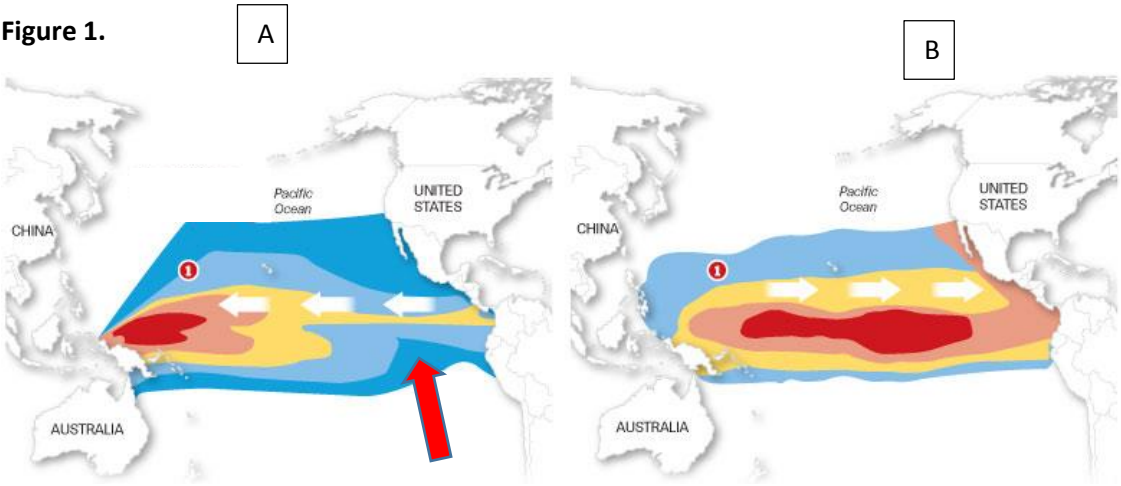
1. **Surface and near-surface ocean currents are powered primarily by wind.**
    a. **True**
    b. **False**
2. **The two major controlling factors for deep ocean currents are:**
    a. **Salinity and wind**
    b. **Pressure and salinity**
    c. **Wind and temperature**
    d. **Temperature and salinity**
3. **_____ is a process in the water cycle where water vapor rises into the atmosphere**
    a. **Precipitation**
    b. **Transpiration**
    c. **Condensation**
    d. **Evaporation**
4. **Weather is determined by the conditions in the:**
    a. **Troposphere**
    b. **Stratosphere**
    c. **Mesosphere**
    d. **Thermosphere**
5. **What force is behind all the weather on Earth?**
    a. **Wind**
    b. **Coriolis Force**
    c. **Obliquity**
    d. **Energy from the sun**
6. **A mountain can effect climate by:**
    a. **Absorbing more solar energy at the peak than at the base of the mountain**
    b. **Causing precipitation to fall mostly on one side of the mountain**
    c. **Pushing a cool air mass back out over the ocean**
    d. **Interfering with air currents and affecting Earth's rotation**
7. **Which on the following is an example of a climate region:**
    a. **Tropical**
    b. **Sunny**
    c. **Alpine**
    d. **Rainy**
8. **What type of front forms when an active cold front overtakes a warm front, producing a complex weather pattern?**
    a. **Stationary front**
    b. **Warm front**
    c. **Dry-line/ Dew Point front**
    d. **Occluded front**

9. **The atmosphere is made primarily of:**
    a. **Carbon Dioxide**
    b. **Oxygen**
    c. **Nitrogen 78%**
    d. **Water Vapor**
10. **A portion of the mesosphere & thermosphere known for its ability to "bounce" radio signals is the _____**
    a. **Exosphere**
    b. **Ozone layer**
    c. **Ionosphere**
    d. **Troposphere**
11. **A cP air mass has these two characteristics**
    a. **Cold and dry**
    b. **Cold and moist**
    c. **Warm and dry**
    d. **Warm and moist**
12. **Which has the lowest albedo?**
    a. **Grassy field**
    b. **Fresh snow**
    c. **Forest**
    d. **Clouds**
    e. **Ocean**
13. **Which of the follow most correctly describes sunspots**
    a. **The sunspot itself is cooler than the surrounding area (corona); the more sunspots, the less solar radiation the sun emits**
    b. **The sunspot itself is warmer than the surrounding area (corona); the more sunspots, the less solar radiation the sun emits**
    c. **The sunspot itself is cooler than the surrounding area (corona); the more sunspots, the more solar radiation the sun emits**
    d. **The sunspot itself is warmer than the surrounding area (corona); the more sunspots, the more solar radiation the sun emits**
14. **Approximately how many hours of daylight does a person standing on the South Pole receive on the summer solstice?**
    a. **0**
    b. **12**
    c. **24**
    d. **Varies depending on the obliquity cycle**
15. **Josh is standing at 30 degrees south latitude. What would be the measure of the angle between his line of sight and the apparent position of the sun on the winter solstice?**
    a. **7.5 degrees**
    b. **30 degrees**
    c. **53.5 degrees**
    d. **60 degrees**
    e. **83.5 degrees**

Matching

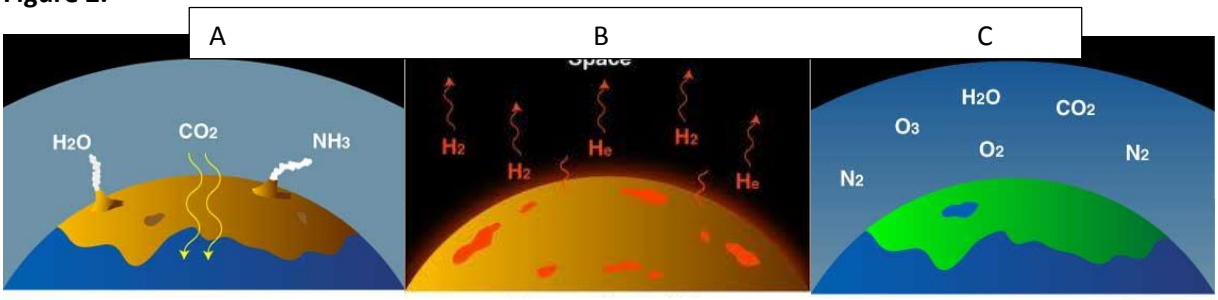
1. ___ tree rings	E. 700 years ago
2. ___ ice cores	C. 500,000 years ago
3. ___ instrumental records	A. 150 years ago
4. ___ coral bleaching	D. 30 years ago
5. ___ sediment cores	B. 1 million years ago

Figure 1.



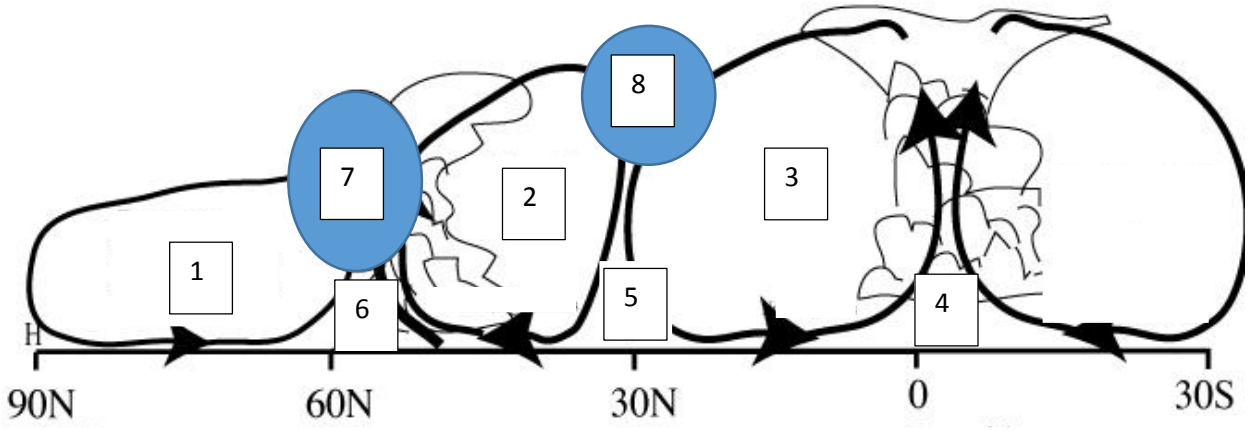
1. **Which one of the drawings in Figure 1. Is El Nino? A or B Remember El Nino is a reversing of the trade winds**
2. **The red arrow in drawing A points to an area where deep cold water replaces the warm surface water. The is called:**
    a. **Upwelling**
    b. **Uprising**
    c. **Orographic Lifting**
    d. **Thermo-swelling**
3. **The air circulation pattern that is associated with an ENSO is the:**
    a. **Walker Cell**
    b. **Hadley Cell**
    c. **Rossby Wave**
    d. **Gulf Stream**
    e.

Figure 2.



1. **Which one of the pictures above depicts Earth's 1st atmosphere? _____B 1st atmosphere was H2 and He2**
2. **Earth's 3rd atmosphere was formed approximately A. 4.6 billion years ago B. 4.4 billion years ago C. 3.6 billion years ago D. 2.6 billion years ago**

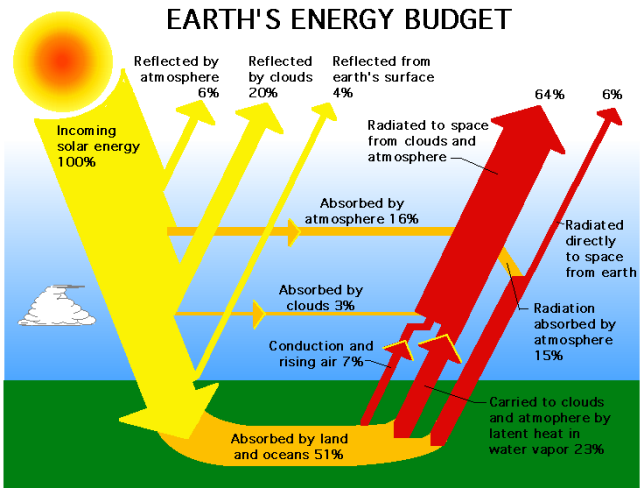
Figure 3.



1. _____D
2. _____B
3. _____A
4. _____G/F
5. _____E/H
6. _____F/K
7. _____K/F
8. _____J/H

A. Hadley Cell
B. Ferrell Cell
C. Walker Cell
D. Polar Cell
E. High Pressure
F. Low Pressure
G. ITCZ/Doldrums
H. Horse Latitude
J. Sub-Tropical Jet(High)
K. Sub-Polar Jet(Low)
L. Rossby Wave
M. ENSO

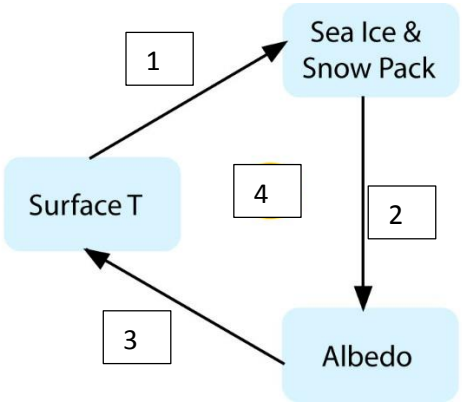
Figure 4.



1. **What percentage of the incoming solar energy is reflected back? __**
2. **What percentage of the incoming solar energy is absorbed? __**
3. **Is the energy represented by the red arrows, shortwave or longwave?**

Figure 5.

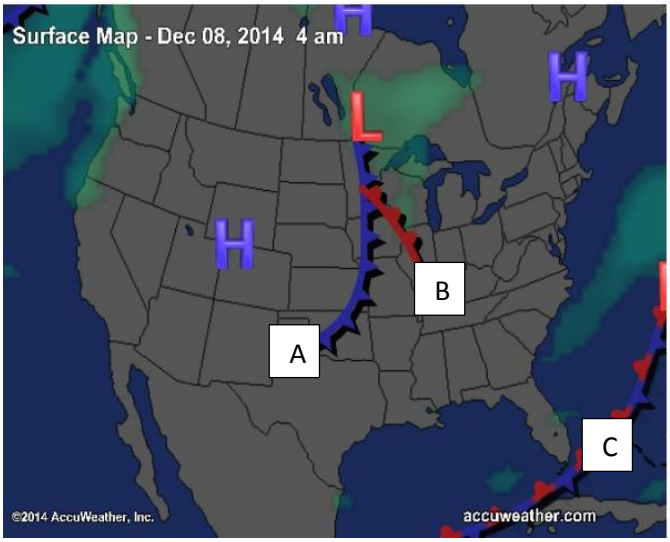
Feedback Loop



Feedback loops describe visually what type of impact one thing has on another. Example would be, if increase in surface temperature made the Snow pack increase, the box number 1 would have a plus sign, if it would make it decrease then you would put a minus sign in box number 1. Identify each block as a plus or minus in the feedback loop as well as the overall impact of the loop as either positive or negative in number 4. A plus is A, a Minus is B

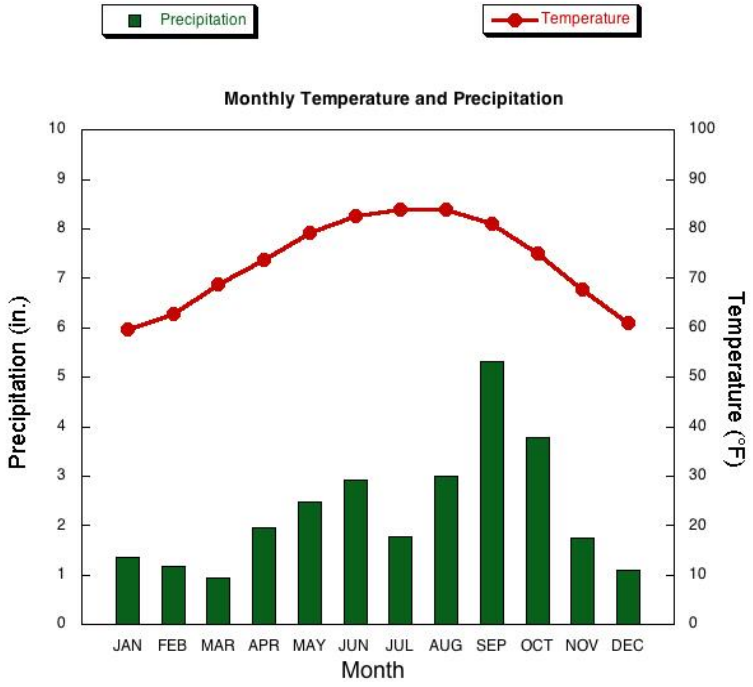
1.__ ___ 2. _____ 3. _____ 4. _____

Figure 6.



1. **Front A will probably catch front B? A if true, B if false**
2. **"IF" front A were to catch from B, what type of front would it become?**
    a. **Dry-line**
    b. **Stationary**
    c. **Occluded**
    d. **Squall-line**
3. **What type of front is C?**
    a. **Dry-line**
    b. **Stationary**
    c. **Occluded**
    d. **Squall-line**

Figure 7. North American City



1. **To be considered a 'wet' summer, 70% of the precipitation must fall during that season. Is this cities summer considered**
    a. **Wet**
    b. **Dry**
    c. **Neither**
2. **What is the annual average temperature? ___ ____**
3. **What is the Koppen Classification of this city? _____**