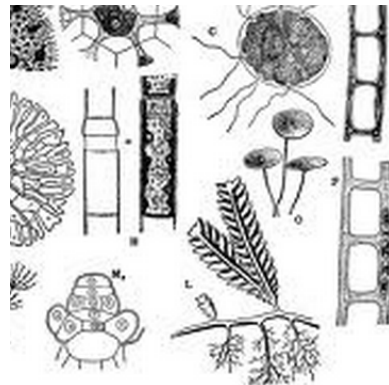
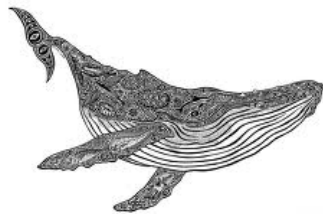


**ST/STE Pretest 3.3 v 2014 ANSWERS****Multiple Choice: Circle one letter (corresponding to the right answer) only for each question.**

- Which of the following is important evidence for climate change?
  - CO<sub>2</sub>'s behaviour towards visible light and infrared
  - The amount of CO<sub>2</sub> found in ice cores from thousands of years ago.
  - The ratio of H<sub>2</sub>/H<sub>1</sub> found in ice cores from thousands of years ago.
  - All of the above**
- Which of the following does **not** cause climate change?
  - Burning of natural gas
  - hydroelectricity**
  - Combustion of coal
  - Gasoline-powered vehicles
- Which environmental problem leads to dead trees, especially if they're at high altitudes?
  - Global warming
  - Acid rain**
  - Soil contaminants like mercury
  - Ozone depletion
- What contributes SO<sub>2</sub> which eventually becomes part of acid rain?
  - Combustion of C-containing fuels
  - Roasting metal ores and burning S-containing fuels**
  - High temperatures in engines
  - Use of refrigerants and sprays
- Where on Earth is the largest depletion of ozone?
  - Antarctica**
  - Arctic Circle
  - Greenland
  - Himalayas



- What organisms in the ocean are producers?
  - crabs
  - corals
  - algae**
  - whales



7. Which of the following least affects primary productivity in the forest?
- (A) The number of birds in the trees
  - (B) The amount of sunlight reaching the plants
  - (C) The amount of moisture received by the roots.
  - (D) The amount of ammonium and phosphates in the soil.
8. Which of the following is an omnivore?
- (A) sea gull
  - (B) cat
  - (C) horse
  - (D) sunflower
9. Which of the following statements concerning energy in an ecosystem is FALSE?
- (A) Heat loss affects the energy efficiency
  - (B) Energy in an ecosystem is recycled like P, N and C
  - (C) Energy transfer occurs from sun to plants
  - (D) Energy transfer occurs whenever a primary consumer eats.

10. The porosity of rock will influence how fast water from a watershed is delivered to a river or bay. The factor being described here is \_\_\_\_\_
- (A) Climate
  - (B) Geology
  - (C) Topography
  - (D) Vegetation

11. The Ottawa river which flows through our nation's capital is part of what major watershed? \_\_\_\_\_
- (A) Hudson Bay
  - (B) Lake Champlain
  - (C) St. Lawrence River
  - (D) Ungava Bay



12. An ice floe (small) is to sea ice what a glacier is to an \_\_\_\_\_.
- (A) Iceberg
  - (B) Ice cube
  - (C) Ice cap
  - (D) Ice cream



13. What name is given to permanently frozen ground?  
 (A) Permafrost  
 (B) Ice cap  
 (C) Snow  
 (D) Tundra
14. What greenhouse gas is released by decomposers when permanently frozen ground begins to thaw?  
 (A) Carbon dioxide  
 (B) Nitrous oxide  
 (C) Water  
 (D) Methane
15. What organisms convert waste into phosphates?  
 bacteria
16. What two P-containing polyatomics are absorbed directly by plants?  
 $\text{PO}_4^{3-}$  and  $\text{HPO}_4^{2-}$
17. a) What comes first? Eutrophication? or **Runoff?**  
 b) In which two cycles, does eutrophication occur because of excess nutrients in lakes?  
**P and N**  
 c) Aside from shallow lakes, excess algae, oxygen depletion and dead fish, what else can eutrophication lead to?  
**Release of toxic substances by blue green algae**
18. a) When ice floats, what two forces are balancing each other out?  
**Buoyancy and gravity**  
 b) If the ice is moved to sea water of a greater density, what will happen to the amount of ice sticking out of the water? (More? Less? The same?) **more ice will stick out**  
 $V_{\text{dw}}/V_{\text{ice}} = d_{\text{ice}}/d_{\text{w}}$  will be lower because  $d_{\text{w}}$  is higher for sea water. If there's less submerged ice than that means more is sticking out.  
 c) Will a full glass holding an ice cube overflow with water after the ice melts? **NO**  
 d) If water- ice sinks in alcohol, will the volume of the alcoholic drink shrink after the completely submerged ice melts?  
**YES**



19. Which second period element has a valence of 4?
- (A) B  
 (B) Ba  
 (C) C  
 (D) N
20. If the concentration of a solution is 10 g/L and it contains 0.20 g of solute, what is the solution's volume?

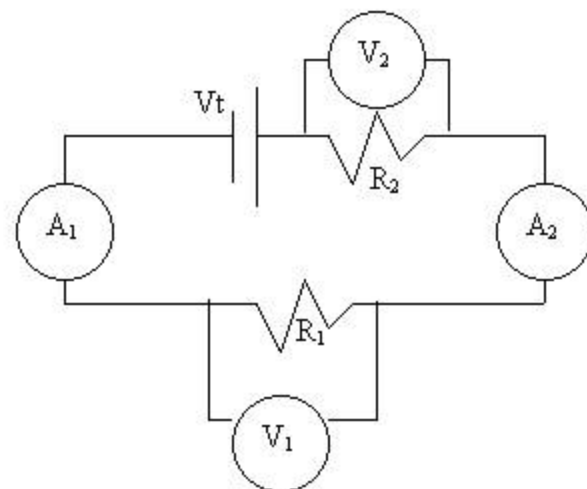
- (A) 50 L  
 (B) 2.0 L  
 (C) 0.020 ml  
 (D) 20 ml

21. What family of elements quickly reacts with metals?

- (A) Alkali  
 (B) Alkaline earth  
 (C) Halogens  
 (D) Noble gases

22. Which of the following statements concerning the diagram is TRUE?

- (A) Only  $V_1$  is correctly attached.  
 (B) This is a parallel circuit.  
 (C)  $V_1 = V_2$ , regardless of  $R_1$  and  $R_2$   
 (D)  $A_1 = A_2$ , regardless of  $R_1$  and  $R_2$

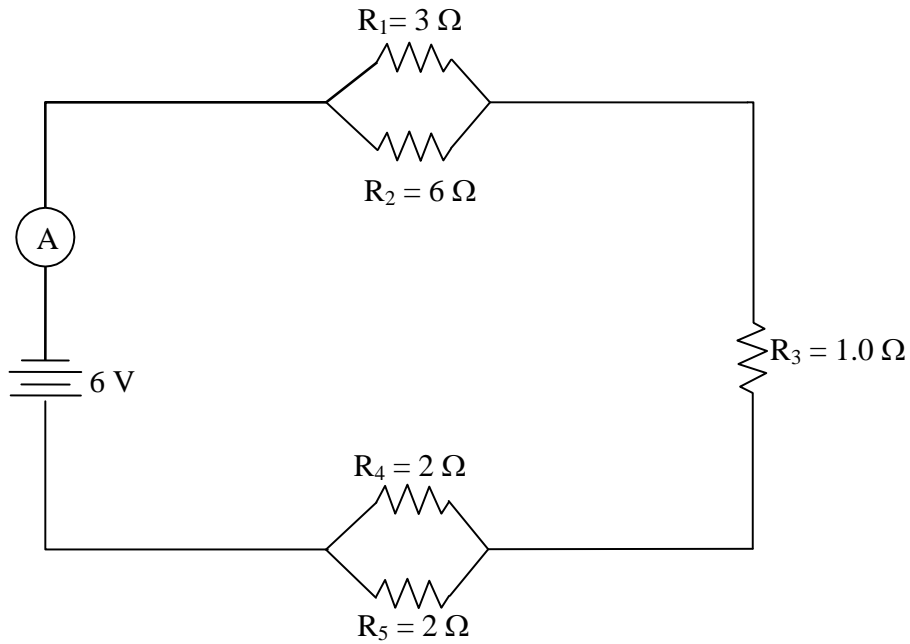


23. If the efficiency of the circuit shown is not 100%, then some electrical energy is converted into \_\_\_\_\_
- (A) A chemical compound  
 (B) Another resistor  
 (C) Heat  
 (D) Sound

24. A microscopic part of a magnet that still has dipoles is known as a \_\_\_\_\_

- (A) domain  
 (B) lodestone  
 (C) magnetic field  
 (D) electrical field

25. What current flows through  $R_4$ ?



$$R_T = 4\ \Omega$$

$$I_T = 6V / 4\ \Omega = 1.5A$$

That current will split evenly, so answer =  $1.5A / 2 = 0.75 A$