1. When should you use goggles in a lab?
   a. When using glassware   b. When using heat   c. When using chemicals   d. All of the above

2. A mountain's elevation above sea level is 9.8×10^3 m. What is the mountain's elevation in standard form?
   a. 9,800 m   b. 980 m   c. 98 m   d. 9,8000 m

3. Convert 0.0000000123 into scientific notation.
   a. 0.12×10^7 b. 1.23×10^7 c. 1.23×10^{-8} d. 0.1×10^{-8}

4. Convert 15 L to mL
   a. 0.015 mL   b. 0.15 mL   c. 15,000 mL   d. 1,500 mL

5. Convert 2.3 kg to cg
   a. 230,000 cg   b. 2,300 cg   c. 23,000 cg   d. 2,300,000 cg

6. Which statement contains a conclusion?
   a. The scientist goes back to the laboratory and fills each of two beakers with 1 liter of fresh water. Then he dissolves 35 grams of table salt in one of the beakers
   b. The scientist then places both beakers in a freezer at -1°Celsius and leaves in the freezer for 24 hours.
   c. The scientist examines both beakers and finds the fresh water to be frozen. The salt water is still liquid.
   d. The scientist writes, "It appears that salt water freezes at a lower temperature than fresh water does."

7. Which statement contains a hypothesis?
   a. A scientist wants to find out why sea water freezes at a lower temperature than fresh water.
   b. The scientist goes to the library and reads a number of articles about the properties of solutions.
   c. The scientist travels to a nearby beach and observes the conditions there. The scientist notes the taste of the sea water and other factors such as waves, wind, air pressure, temperature, and humidity.
   d. After considering all of the information, the scientist sits at a desk and writes, "If sea water has salt in it, then it will freeze at a lower temperature than fresh water."

8. Which statement describes the problem?
   a. A scientist wants to find out why sea water freezes at a lower temperature than fresh water.
   b. The scientist goes to the library and reads a number of articles about the properties of solutions.
   c. The scientist travels to a nearby beach and observes the conditions there. The scientist notes the taste of the sea water and other factors such as waves, wind, air pressure, temperature, and humidity.
   d. After considering all of the information, the scientist sits at a desk and writes, "If sea water has salt in it, then it will freeze at a lower temperature than fresh water."

9. Which statement contains the independent variable?
   a. The scientist goes back to the laboratory and fills each of two beakers with 1 liter of fresh water. Then he dissolves 35 grams of table salt in one of the beakers
   b. The scientist then places both beakers in a freezer at -1°Celsius and leaves in the freezer for 24 hours.
   c. The scientist examines both beakers and finds the fresh water to be frozen. The salt water is still liquid.
   d. The scientist writes, "It appears that salt water freezes at a lower temperature than fresh water does."

10. Which statement contains the data of the experiment?
    a. The scientist goes back to the laboratory and fills each of two beakers with 1 liter of fresh water. Then he dissolves 35 grams of table salt in one of the beakers.
    b. The scientist then places both beakers in a freezer at -1°Celsius and leaves in the freezer for 24 hours.
    c. The scientist examines both beakers and finds the fresh water to be frozen. The salt water is still liquid.
    d. The scientist concludes, "It appears that salt water freezes at a lower temperature than fresh water does."

11. Which statement contains the constants in the experiment?
   a. The scientist goes back to the laboratory and fills each of two beakers with 1 liter of fresh water. Then he dissolves 35 grams of table salt in one of the beakers
   b. The scientist then places both beakers in a freezer at a temperature of -1°Celsius and leaves the beakers in the freezer for 24 hours.
   c. After 24 hours, the scientist examines both beakers and finds the fresh water to be frozen. The salt water is still liquid.
   d. The scientist writes in a notebook, "It appears that salt water freezes at a lower temperature than fresh water does."

12. The factor that the scientist manipulates or changes is the _____.
   a. control
   b. dependent variable
   c. independent variable
   d. constant

Hourly Temperature Profiles of Bangalore

24-Apr-12
25-Apr-12

Temperature (°C)

Time of Day

Graph A : Unit 1 Science Skills Test

13. In **Graph A** what is the <u>dependent</u> variable?
   a. time of day   c. Bangalore
   b. temperature   d. climate.org

14. In **Graph A**, what is the <u>independent</u> variable?
   a. time of day   c. Bangalore
   b. temperature   d. climate.org

15. What type of graph would be the best to use to compare the levels of lead contamination in six water wells?
   a. a bar graph   b. a line graph   c. a split line graph   d. a circle graph

16. What happens when the data in an investigation does not support the original hypothesis?
   a. The hypothesis is revised.
   b. The scientist gives up and starts an investigation on a new topic.
   c. The data must be incorrect and are thrown out.
   d. The data are altered so that they support the original hypothesis.

17. How do scientists who speak different languages make their data understandable to one another?
   a. They all use different systems of measurement.   c. They use a translator.
   b. They all use English units.   d. They all use SI units.

18. An organized plan for gathering, organizing, and communicating information is called a(an) _____
   a. scientific theory   b. experiment   c. scientific method   d.   scientific law

19. In which step of the scientific method is information obtained through the senses?
   a. analyzing data   c. making observations
   b. revising a hypothesis   d. drawing conclusions
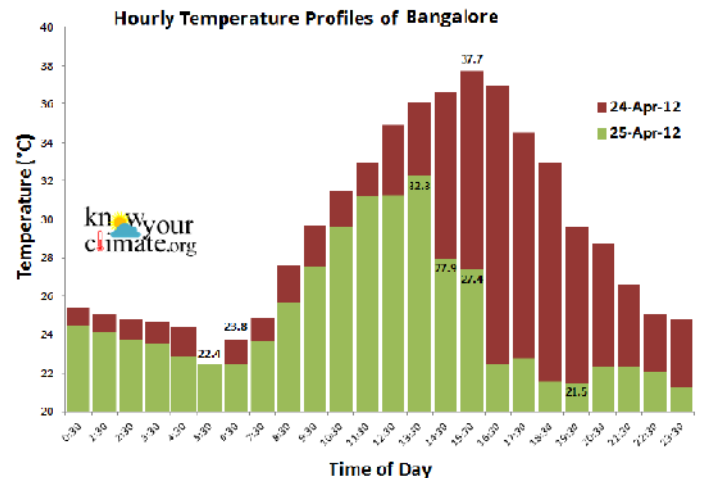
20. A measurement must include both a number and a(an) _____.
   a. unit   c. decimal
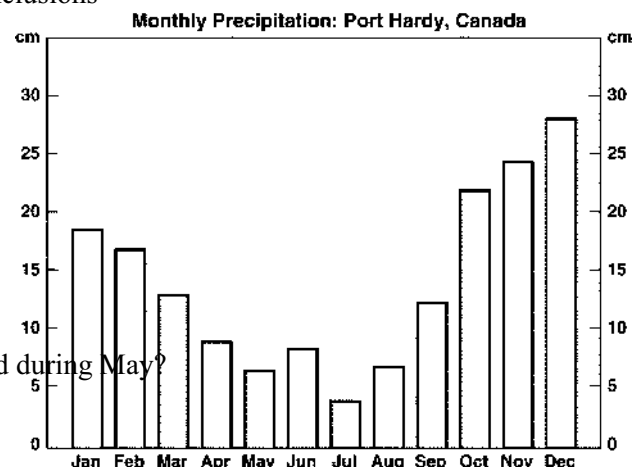   b. conversion   d. explanation

21. What measurements are compared in the graph to the right?
   a. Precipitation in centimeters   c. Monthly precipitation
   b. Months of the year   d. Port Hardy, Canada

22. In the graph, how many centimeters of precipitation were recorded during May?

Monthly Precipitation: Port Hardy, Canada

Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec

a. 3 cm   b. 7 m   c. 10 cm   d. 7 cm

23. In the graph, which month had the highest amount of precipitation?
   a. December   b. May   c. January   d. July

24. What is a system of knowledge and the methods used to find that knowledge?
   a. measurement   b. curiosity   c. technology   d. science

25. How are science and technology related?
   a. Science is a branch of technology.
   b. Science and technology are not related.
   c. Advances in science may lead to advances in technology and vice versa.
   d. Technology is a branch of natural science.

26. The type of graph used to show how a part of something relates to the whole is which of the following?
   a. direct proportion   b. line graph   c. circle graph   d. bar graph

27. The density of sea water is 1.024×10^3 g/cm³. What is the density of the sea water in standard notation?
   a. 0.00124 g/cm³   b. 1,024 g/cm³   c. 10.24 g/cm³   d. 0.0124 g/cm³

28. A student conducts an experiment by dropping a basketball and a box of cereal of the same weight from the top of a building. The student measures the time it takes for each object to strike the ground. What could be the student's hypothesis?
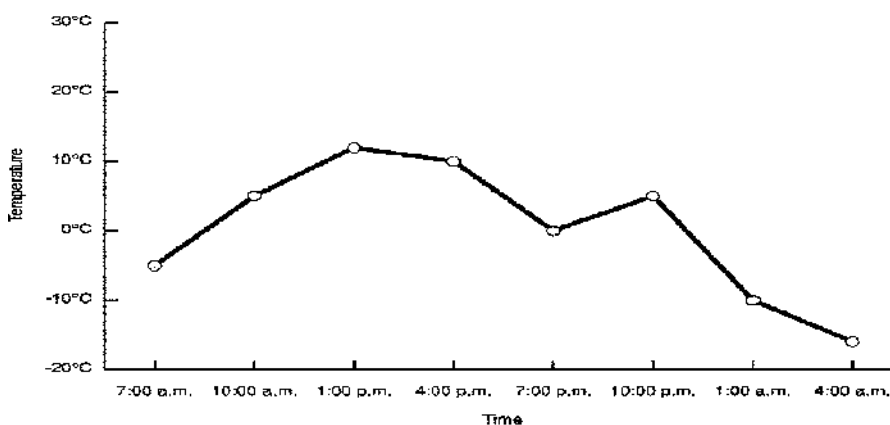   a. A basketball weighs more than cereal.   c. Cereal is good to eat.
   b. Curved objects travel faster than flat objects.   d. A basketball can bounce high.

29. At which time of day was the temperature approximately -10°C in the graph to the right?
   a. 9:00 A.M.   c. 4:00 A.M.
   b. 1:00 A.M.   d. 12:00 P.M.

30. What is the approximate temperature at 7:00 P.M.?
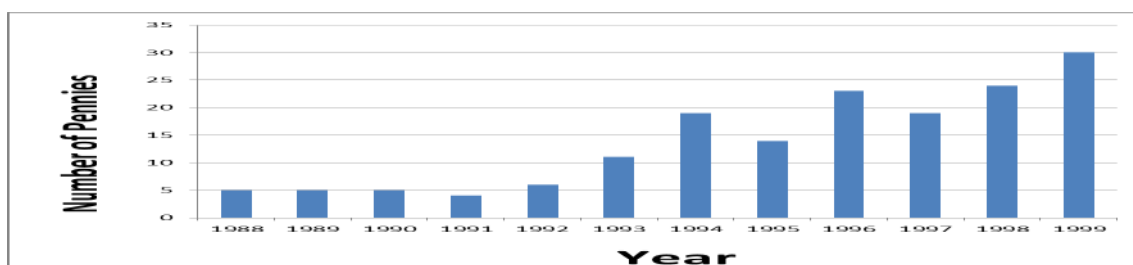   a. 5°C   c. -5°C
   b. 0°C   d. -10°C

Temperature Measured Over Time

31. The data BELOW from a sample of pennies contained the same number of pennies for which years?
   a. 1988 and 1992   c. 1994 and 1997
   b. 1988 and 1991   d. 1994 and 1998

32. A scientist wants to investigate the effect of caffeine on the heartbeat of water fleas. What is the independent variable?
   a. Scientist   b. Flea   c. Caffeine   d. Heartbeat

33. A scientist wants to investigate the effect of caffeine on the heartbeat of water fleas. What is the dependent variable?
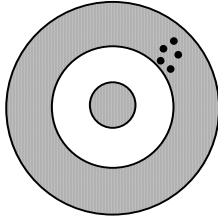
a. Scientist   b. Flea   c. Caffeine   d. Heartbeat

34. What is the most important safety rule?
    a. Always follow your teacher's instructions.
    b. Never work with chemicals.
    c. Always use unbreakable glassware.
    d. Never do experiments that involve flames or hot objects.

35. Look at the target below and decide whether the situation is accurate, precise, both, or neither:

     a.   Accurate but not precise
     b.   Precise but not accurate
     c.   Accurate and precise
     d.   Neither accurate nor precise

36. Show all calculations for the following question on the BACK of your answer document.

Use your formula sheet!! [5 point]

A sample of wood has the dimensions 3.45 cm x 1.50 cm x 2.25 cm. If the mass of this rectangular-shaped object is 94.01g, what is the density of the wood? SHOW ALL WORK WITH UNITS
   Given   1 pt.
     Equation 1pt.
     Volume 1pt.
     Answer 1pt.
     Units 1 pt.

37. A student set up the experiment below to learn about plant growth. The student added a different amount of water to four identical containers, each containing four seeds in 100 cubic centimeters of soil. All of the containers were placed in the same sunny location. **In essay format <u>on the back of your answer document</u>, state the hypothesis, identify *at least two* constants and identify BOTH the independent and dependent variables in this experiment.**
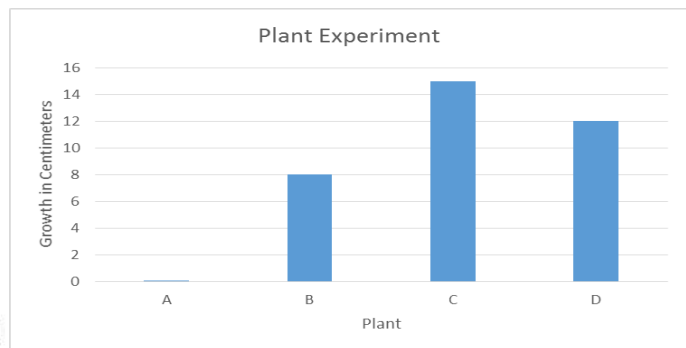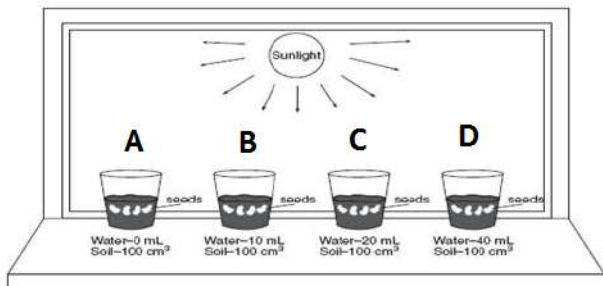
Item # Correct Answer Standard ID Point	
1. D SCI.912.PS.SCSh1	19. C SCI.912.PS.SCSh3
2. A SCI.912. PS.SCSh5	20. A SCI.912.PS.SCSh3.c
3. C SCI.912. PS.SCSh5	21. C SCI.912.PS.SCSh4
4. C SCI.912 PS.SCSh5	22. D SCI.912.PS.SCSh4
5. A SCI.912 PS.SCSh5	23. A SCI.912.PS.SCSh4
6. D SCI.912. PS.SCSh3	24. D SCI.912.PS.SCSh7
7. D SCI.912. PS.SCSh3	25. C SCI.912.PS.SCSh7
8. A SCI.912. PS.SCSh3	26. C SCI.912.PS.SCSh4.b
9. A SCI.912. PS.SCSh3	27. B SCI.912.PS.SCSh5
10. C SCI.912. PS.SCSh3	28. B SCI.912.PS.SCSh3
11. B SCI.912. PS.SCSh3	29. B SCI.912.PS.SCSh3
12. C SCI.912.PS.SCSh3	30. B SCI.912.PS.SCSh3
13. B SCI.912.PS.SCSh3	31. C SCI.912.PS.SCSh3
14. A SCI.912.PS.SCSh3	32. C SCI.912.PS.SCSh3
15. A SCI.912.PS.SCSh4.b	33. D SCI.912.PS.SCSh3
16. A SCI.912.PS.SCSh3	34. A SCI.912.PS.SCSh2
17. D SCI.912.PS.SCSh6	35. B SCI.912. PS.SCSh5.c
18. C SCI.912.PS.SCSh3	

37.

36. state the hypothesis 1pt
     identify *at least two* constants (1pt each, 2 total.)
     independent variables in this experiment (1pt)
     dependent variables in this experiment (1pt)