1) 4 2) 3 3) 4 4) 3 5) 1

6) 2 7) 3 8) 4 9) 2 10) 2

11) 1 12) 3 13) 4 14) 2 15) 1

16) 4

17) SAMPLE ANSWERS: The claim is not valid because... all species of mammals have different chromosomal makeups. OR ...only one experiment was performed. OR ...the results in one species (mice) cannot be used to make generalizations that apply to all animals. OR ...different organisms are genetically different.

18) SAMPLE ANSWER: There is no control group. OR There is no basis for comparison. OR There is no data on "normal" growth.

19) SAMPLE ANSWERS:
(1) The control group will be in a 0% salt solution while the experimental groups will be in varying salt concentrations, such as 2%, 4%, and 6%. OR The control group will be in normal seawater while the experimental groups will have different salt concentrations.
(2) the number of brine shrimp eggs in each group OR species of brine shrimp OR the number of days observed OR the temperature OR the amount of liquid in each container OR the size of each container OR the type of container
(3) the total number of brine shrimp eggs hatched after a given time in each of the different salt concentrations
(4) the concentration of salt in which the greatest number of shrimp eggs hatched by the end of the experiment OR The concentration in which brine shrimp eggs hatch soonest is best.

20) SAMPLE ANSWERS:
(1) Three containers, each with a different salt concentration (2%, 4%, and 6%), should be used OR four containers, one with water, the other three with different salt concentrations (2%, 4%, and 6%) OR four containers, a control and the others with 2%, 4%, and 6% salt solution;
(2) temperature of the water OR number of eggs per container OR salt-water level or volume OR size of container OR amount of time;
(3) how many eggs hatch in each salt concentration;
(4) arrange the data in a data table or a spreadsheet OR graph the data;
(5) The solution that has the most eggs hatch is the best one to use.

21) SAMPLE ANSWERS:
(1) Tomato plants exposed to 16 hours of light will grow faster than those exposed to 8 hours of light. OR Light affects plant growth. OR A brighter light will cause the tomato plants to grow larger.
(2) the amount of light OR light OR the intensity of the light
(3) height of plants OR number of leaves OR size of leaves OR mass of the plants OR amount of growth
NOTE: The type of data must be measurable.

22) SAMPLE ANSWERS:
(1) Soil pH affects flower (petal) color.
(2) The control group will be planted in soil that is slightly basic. The experimental groups will be planted in soil that has a pH that is not slightly basic. OR The experimental group will be grown in acidic soil. The control group will be grown in nonacidic soil.
(3) amount of soil OR amount of water OR amount of light OR temperature
(4) petal color OR flower color.
(5) Red flowers appear on the plants that grow in soil that is not slightly basic. OR Plants grown in acidic soil have red flowers.

23) SAMPLE ANSWERS:
(1) Pill bugs prefer the dark. OR If pill bugs are given a choice of light or darkness, they will prefer the light area. OR If a light and a dark area are provided in a closed container, the pill bugs will not exhibit a preference for either the light or dark area.;
(2) presence or absence of light OR amount of light;
(3) temperature OR humidity OR species of pill bug OR type of container OR number of pill bugs in each group;
(4) More pill bugs are found in the dark area after five minutes than in the light area. OR More pill bugs are found in the light area at the completion of the experiment. OR The same number of pill bugs are found in both the light and dark areas.

24) SAMPLE ANSWERS:
(1) Bosentan treatment improves the lung function of people with high blood pressure in the lungs. OR Treatment with bosentan will decrease a patient's blood pressure in the lungs. OR Treatment with bosentan will increase a patient's ability to walk without fatigue. OR Bosentan can be used to treat high blood pressure in the lungs.;
(2) The control group... will not receive bosentan. OR ...will be given a placebo (or sugar pill).;
(3) same number of males and females OR similar activities for the 12 weeks OR initial high pulmonary blood pressure OR same size pill, given at the same time OR similar food, sleep time, etc. OR same range of ages
(4) Record the initial pulmonary blood pressure in each group. Once a week, record the pulmonary blood pressure of each group. OR See which individuals can walk the longest without fatigue after treatment begins and compare this to how long they could walk without fatigue prior to treatment.

25) SAMPLE ANSWERS: no music being played while the pulse is being taken OR silence while the pulse is being taken

26) SAMPLE ANSWERS: did not obtain pulse rates before lunch OR sample size too small OR no control group

27) SAMPLE ANSWERS: no mention of type of data to be collected OR The two groups of mice were not given the same quantity of food and water. OR Equal numbers of males and females should receive the same doses of ibuprofen. OR no control group OR Treatment groups should contain equal numbers of males and females. OR no hypothesis stated OR more than one variable

28) SAMPLE ANSWERS: The number of squeezes in 30 seconds will decrease with each consecutive trial. OR As the number of trials increases, the number of squeezes decreases.

29) SAMPLE ANSWERS: As activity increases, so does the pulse rate. OR The pulse rate increases as the activity increases.

30) SAMPLE ANSWERS: larger sample size OR repeat the investigation

31) resting pulse rate

32) SAMPLE ANSWERS:
(1) Competition decreases plant height OR Competition increases plant height. OR Competition has no effect on plant height.;
(2) same potting soil (type or amount) OR environmental conditions (sunlight, H_2O) OR type of plant;
(3) height OR size;
(4) The data supports my hypothesis because the plants in the pot with the greatest number of plants were the shortest. OR The data does not support my hypothesis because the plants in pot *C* (20 plants) were shorter than the plants in pot *A* (5 plants). OR The data did not support my hypothesis because the number of plants in the pot did affect the heights of the plants.

33) SAMPLE ANSWERS:
(1) a garlic bulb grown in (distilled) water;
(2) Each experimental group would have a different concentration of salt solution.;
(3) the length of the leaf in each group OR the length of the roots in each group OR the number of roots in each group;
(4) There is an increase in the length of the leaves as the salt concentration increases. OR There is an increase in the length of the roots as the salt concentration increases. OR More salt results in more roots.

34) SAMPLE ANSWERS: The problem was to determine how the yellow fever microbe was being transferred from person to person. OR How is yellow fever spread?

35) SAMPLE ANSWER: Yellow fever is spread by contact with the clothing of people who had yellow fever.

36) SAMPLE ANSWER: The control should have been... a group of people sleeping in nightshirts. OR ...bedding that had not been used by yellow fever patients.

37) SAMPLE ANSWERS:
(a) Lily plants grow faster at 20° C than at 15° C. OR Temperature affects plant growth. OR Lily plants produce more flowers at higher temperatures.;
(b) height OR mass OR number of leaves OR number of flowers

38) SAMPLE ANSWERS: use more lily plants in each setup OR conduct repeated trials OR increase the sample size OR use a wider

range of temperatures

39) SAMPLE ANSWERS: The closer the food source, the more waggle runs in 15 seconds. OR Fewer waggles means that food is farther away. OR As one variable increases, the other decreases.