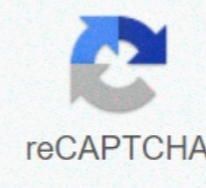




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## Biology sol review answer key

I. Out of SOL Questions - Online Quizzes Sorted By Topic: BIO SOL Review 1 - Science, Collaboration, microscopes (22 questions)BIO SOL Review 2 - Experiments (23 questions)BIO SOL Review 3 - Data - Graphs (17 questions)BIO SOL Review 4 - Data - Tables - Tables and Charts (21 questions)BIO SOL Review 5 - Cells (26 questions)BIO SOL Review 6 - Classification (19 Q's)BIO SOL Review 7 - Energy-Photosynthesis and Spiration (14 Q's)BIO SOL Review 8 - Energy - Food Networks (8 Q's)BIO SOL Review 9 - Homeostasis - Water Properties ( 13 Q's)BIO SOL Review 10 - Macromolecules - Enzymes (9Q's)BIO SOL Review 11 - Environments - Biomes, Ecosystems, Human Impact (26)BIO SOL Review 12 - Disease - Viruses - Antibiotics (12 Q's)BIO SOL Review 13 - Development - Mitosis, Meiosis (12 Q's) BIO SOL Review 14 - Adaptations (18 Q's) BIO SOL Review 15 - Genetics and Evolution (28)BIO SOL Review 16 - DNA - RNA (17 Q's)BIO SOL Review 17 - Fossils (8 Q's) BIO SOL Review 18 - Human Body (10 Q's)II. SOL test is divided into four main themes. The SOL test asks a certain number of questions about each topic. I'm sure you know the information in dark blue. Answers to questions can be found on the bottm page. Subject 1: Scientific research (11 questions) BIO.1a-1a) Observations of living organisms are recorded in the laboratory and field surveys can be both qualitative (specifications) and quantitative (numerical).-Be sure to know what is in the observations (using your mind) and conclusions (assumptions)Example:1. Jeremy puts three plates out with three different food sources. Which question could be best answered? A. How does the fly digest different foods?b. How much energy flies get from different foods?c. Which food attracts flies from the greatest distance?d. Which food attracts the flies? 2. Crystal monitors bald eagles in the wild. Which one is an observation crystal made about a bald eagle?a. Bald eagle belongs to the domain of Eukaryab. The bald eagle caught the fish and ate itc. Bald eagle likes to fly. Bald eagle loves to eat fish3. Chloe recorded the information on her lab sheet during the classroom experiment. Which of the following recordings is quantitative?a. The enzyme in the liver did not work at high temperatures. The liver in the test tube turned brown when it was heated. The bubbles reached a height of 10 centimeters in a four-metre test tube. Temperature denatures enzymes and they no longer function properly.b) Hypotheses are based on direct observations and information from scientific literature – formulate hypothesis based on the relationship between cause and effect. – justify the hypotheses on the basis of both preliminary observations and scientific literature4. Darby's hypothesis is that more pine seeds germinate after a fire. The most valid and reliable test of this hypothesis would include a test group of pine seeds found in the fire area and pine seeds a. Found before fire b. tolerant fire c. sprouted after fire d. put on fire 5. Data on the climate of the ecosystem were collected over a period of 30 years. What hypothesis could be made about the eagle population based on the climate data collected? A. The survival of the eaglet is directly related to the annual rainfall. B. Outbreak in 1987 C. The Eagles will stay with the same companion for the rest of their lives. D. After the 1992 so-out list, the Commission has been in a state of self-s Two plant species found in a dry region of the western United States exhibit a wide variety of abilities to survive. Species A has very slow stem growth and few leaves, but is very rich. Species B has rapid stem growth and many leaves, but are very rare. Which hypothesis is most likely supported by this information? A. The size and colour of the flower may give species B an advantage over category A. b. The decline in root growth may give species A an advantage over species B.c. The leaf shape may give species B an advantage over category A. d. Reduced stem growth may give species A an advantage over species Bc) variables are defined and studies are designed to test hypotheses– identify the independent variable (IV) and test IV values.- select the variables that collect quantitative data.- identify the variables that must be kept constant.- specify the verification if necessary. , repeatable procedure.7. Sarah designed the experiment to test the effects of temperature on bacterial growth. He grew three different cultures of bacterium E. coli under three heat lamps at different temperatures. What was the independent variable in this experiment? A. Test length b. Number of bacteria c. Reproduction speed d. Temperature 8. Zach studied the tundra swans herd that spent the winter in Virginia by the rivers. The Swans migrate to other places in the spring. What would be the best way for Zach to distinguish between the birds they study in Virginia and herds at the summer site? A. Capture the birds' expected summer location and dissect them to find clues that indicate the birds were in Virginia in winter b. Take a detailed picture of the winter herds in other locations of Virginia and summer herds and compare photos c. Try and put encoded bands for birds in Virginia, then record the bands d. Follow virginia herd in a vehicle every day 9. What question can not be answered scientifically, because quantity cannot actually be measured? A. How much food do water buffalo consume in one day? B. How hard is a mature woman's svant? C. How fast can a tiger swallowtail butterfly fly? D. How happy is a chimpanzee when he finds his favorite food? 10. Which sentence is best used for the use of control groups? A. Control groups shall provide a method for reducing statistical variability. B. Treatment-naïve and untreated subjects. C. Control groups shall eliminate the need for statistical tests and simplify calculations. D. Control groups eliminate the need for large samples by reducing the number of measurements required. 11. The student wanted to view the growth of plants in five different soil samples. He planted the same type of seeds in identical containers and left them in full sunlight. He gave each plant the same amount of water and mapped the growth of each plant strain. What is an independent variable in this experiment? a. Seeds b. Soil c. Light d. Container (t) graph and arithmetic calculations are used as tools in the data analysis:-- graphically draw data showing independent and dependent variables.- describe trends in data and draw conclusions– determine the range, average and density12. Which one is measured to determine the population density of polar bears in Canada? A. Number of bears per square kilometre b. Mass of bears in the Arctic Circle c. Total number of bears minus juvenile bears d. Total number of bears per day 13. The statistics were taken from room 242 and the following ages were recorded: 16, 15, 16, 32 and 18. Calculate the average age of this data set.14. Locate the range problem13.15 in this data set. The mercury metal is poured into a graduated cylinder that can hold exactly 22.5 ml. The mercury used to fill the cylinder weighs 306.0 g. On the basis of this information, the density of mercury is calculated. (e) the conclusions are drawn from the quantitative and qualitative data recorded;- data on quantitative data in tables with clearly marked units.- include marking charts in advanced data recording technology that are related to and discussed in test planning;- discuss the ties of the results related to the sources of accuracy, confidence and test errors based on the number of tests and the dispersion of the data.16 A biology class of 24 students decides to measure the height of each student and then calculate the average height of the class. Which one is the possible source of error for this activity? A. Number of men and women in class B. Difference between students' ages in class c. Total number of students in class d. Accuracy of measurement (g) determine the validity of the data:-- identify and discuss conflicting or unusual data. -- use evidence, apply logic, and make an argument for drawing conclusions based on the data provided.- recognize that, in order to ensure the validity of scientific studies, they must be evaluated by other members of the scientific community.h) chemicals and equipment are used safely. Be sure to take the right precautions in the laboratory of a device such as wasing your hands when you leave, tie long hair back, when close to the open flame kleeer, wear goggles to protect your if materials are heated or read before toxic chemicals are destroyed) Identify and use appropriate technology for data collection and analysis, including probeware (temperature, pH and dissolved oxygen thermometer sensors.)j) scientific literature is used in research;-to determine the extent to which the data support/does not support the hypothesis, and provide further hypotheses and guidance for ongoing research. If you conducted an experiment and your results did not fit your hypothesis, go back and experiment again or adapt your experiment because you may lack anything in control or explore past scientists' experiments with more knowledge.k) differentiation is made between scientific hypothesis, theory and law, and- Hypotheses (test educated think), theory (based on a lot of scientific data, but not considered a fact, because when more evidence becomes available it can be changed for example: evolutionary theory) and laws (truths about nature as the law of gravity)l) alternative scientific explanations and models are recognized and analyzed.- identify and describe scientific theories that have changed or changed over time. Example: After the DNA mapping, the scintists went back and looked at how the organisms were classified and found some species were not as closely related as they ever thought. Life at the molecular and cellular level (16) BIO.2 The student explores and understands the chemical and biochemical principles essential for life. The main concepts are (a) water chemistry and its impact on life processes;(b) the structure and function of macromolecules;(c) the nature of enzymes; and) energy collection, storage, conversion and flow through photosynthesis and breathing processes. BIO.3 The student examines and understands the relationship between cell structure and function. The main concepts are (a) evidence supporting cell theory;(b) characteristics of prokaryotic and eukaryotic cells;(c) similarity of organelles in one cell and throughout the body;(d) a model of cell membrane; the impact of the surface-volume ratio on cell division, material transport and other life processes. BIO.4 The student explores and understands the life functions of Archaea, Bacteria and Eukarya. The main definitions are: how viruses are comparable to organisms. BIO.5 The student explores and understands common heritage and protein synthesis mechanisms. The basic concepts are (a) cell growth and division;(b) germ cell formation;(c) cell specialisation;(e) historical development of the DNA structural model;f) genetic variation;(g) nucleic acid structure, function and replication;(h) events related to the construction of proteins; and) Studying the effects of DNA technologies BIO.6 The student examines and understands the basis of modern classification systems, definitions, including) study of biochemical similarities and differences systems and organisms level (12) BIO.4a-c BIO.5d BIO.6a, c, eBIO.4 The student explores and understands the life functions of Archaea, Bacteria and Eukarya. The main definitions are (a) a comparison of these metabolic activities;(b) maintaining homeostasis; andc) how the structures and functions differ in and inside the Eukarya kingdom of protists, fungi, plants and animals, including humans. BIO.5 The student explores and understands common heritage and protein synthesis mechanisms. The main concepts included) the prediction of legacy features based on Mendelian laws of heredity. BIO.6 The student examines and understands the basis of modern classification systems. The main definitions are (a) structural similarities between organisms;(c) a comparison of stages of development in different organisms; classification systems that can be adapted to new scientific discoveries. Life Forms Interaction (11) BIO.4f BIO.6b BIO.7a-e BIO.8a-eBIO.4 The student explores and understands the life functions of Archaea, Bacteria and Eukarya. The main concepts are f) evidence that supports the theory of infectious disease. BIO.6 The student examines and understands the basis of modern classification systems. The main concepts are (b) interpretation of fossil data. BIO.7 The student examines and understands how the population changes over time. The main concepts are (a) evidence found on the basis of fossil data;(b) how genetic variations, reproductive strategies and environmental pressures affect population survival;(c) how natural selection leads to adaptation;(d) the emergence of new species; scientific evidence and explanations of biological development. BIO.8 The student explores and understands the dynamic balance in populations, communities and ecosystems. The main concepts are (a) interactions within and between the population, including load capacity, restrictive factors and growth curves;(b) the flow of nutrients through ecosystems;(c) succession patterns of ecosystems;(d) the impact of natural events and human activities on ecosystems; analysis of the flora, fauna and micro-organisms of Virginia ecosystems. Replies: 1.D 2B 3C 4A 5A 6D 7D 8C 9D 10B 11B 12A 13. (19) 14th (15-32) 15th (13.6 g/ml) 16. D D

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