

# Biotechnology lecture assignment

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**ASSIGN  
BUSTER**

Science is a system of: a. Relying on one's best intuition, inspiration and perspiration to solve problems b. Advertising as a devious enterprise conceived by entrepreneurial western capitalists to ake money from the ideas of inventive and often eccentric minds c. Making theories that fit certain beliefs about why and how things happen d. Hypothesis making about the mysteries of life e. Hypothesis making and testing to discern and validate observable facts generating evidence based knowledge 16) A chemical unit consisting of negatively charged electrons orbiting a positively charged nucleus is: a.

An atom b. A eukaryotic cell c. A molecule d. A ribosome e. A unit 17) Which of the following statements best describes the logic of the scientific method? a. If I generate a testable hypothesis, tests and observations will uport it b. If my prediction is correct, it will lead to a testable hypothesis c. If my observations are accurate, they will support my hypothesis d. If my hypothesis is correct, I can expect certain test results e. None of these answers are correct 18) Which of the following best distinguishes hypotheses from theories in science? a. Theories are hypotheses that have been proven b.

Hypotheses are tentative guesses; theories are correct answers to questions about nature c. Hypotheses usually are narrow in scope; theories have much broader explanatory power d. Hypotheses and theories mean essentially the same thing 9) The word Theory, is defined as: 1: the analysis of a set of facts in their relation to one another 2: the general or abstract principles of a body of facts, from science, or study of an art as in 3: a plausible or scientifically

acceptable general principle or body of principles offered to explain phenomena Some people say that Evolution is” ‘ just’ a theory’.

Used in this way, modified by the word just indicates that these people may be confusing with the word theory with what other word(s): a. Notion b. Idea c. Story d. Whimsy e. Any or all of these words 20) Superstitions are: . Held by many humans, but not by any non-human species b. Just one of many possible forms of scientific thinking c. True beliefs that have yet to be fully understood d. Irrational beliefs that actions not logically related to a course of events influence its outcome e. Proof that the scientific method is not perfect 21) Empirical results: a.

Rely on intuition b. Are generated by theories c. Are based on observation d. Cannot be replicated e. Must support a tested hypothesis 22) In a well-designed experiment: a. The prediction will be highly probable if the experiment shows the explanation is correct b. The prediction will be highly improbable if the experiment c. The null hypothesis will not be tested d. The prediction will most likely be correct e. Both (A) and (B) are correct 23)

Which of the following statements is correct? a. A hypothesis that does not generate a testable prediction is not useful b.

Common sense is usually a good substitute for the scientific method when trying to understand the world c. The scientific method can be used only to understand scientific phenomena d. It is not necessary to make observations as part of the scientific method e. All of the above are correct 24) The placebo effect: a. Is the frequently observed, poorly understood phenomenon that people tend to respond favorably to any treatment b. Reveals that sugar

pills are generally as effective as actual medications in fighting illness c.

Reveals that experimental treatments cannot be proven effective d.

Demonstrates that most scientific studies cannot be replicated e. Is an urban

legend 25) In controlled experiments: a. One variable is manipulated while

others are held constant b. All variables are dependent on each other c. All

variables are held constant d. All variables are independent of each other e.

All critical variables are manipulated 6) Statistical methods make it possible

to: a. Prove any hypothesis is true b. Determine how likely it is that certain

results have occurred by chance c. Unambiguously learn the truth d. Reject

any hypothesis e.

Test non-falsifiable hypotheses 27) Anecdotal evidence: a. Is a more efficient

method for understanding the world than the scientific method b. Tends to

be more reliable than data based on observations of large numbers of

diverse individuals c. Is a necessary part of the scientific method d. Is often

the only way to prove important causal links between two phenomena e. Can

seem to reveal links between two phenomena, but the links may not actually

exist 28) A relationship between phenomena that has been established

based on large amounts of observational and experimental data is referred

to as: a.

A theory b. A fact c. An assumption d. A conjecture e. A hypothesis 29) What

is the meaning of the statement "correlation does not imply causation"? a.

Just because two variables vary in a similar pattern does not mean that

changing one variable causes a change in the other b. It is not possible to

demonstrate a correlation between two variables c. When a change in one

variable causes a change in another variable, the two variables are not necessarily related to each other in any way d. It is not possible to prove the cause of any naturally occurring phenomenon e.