
Diagnostic Test

General Science

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Do you want a guide that is aligned with current test guidelines, one that includes the exact information without the fluff?

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Testing Tips

1. **Do not read anything into the question.** Do not assume that the test writer is looking for something else than what is asked. Stick to the question as written and do not read extra things into it.
2. **Read the question and all the choices twice before answering the question.** You may miss something by not carefully reading and then re-reading both the question and the answers. If you really do not have a clue as to the right answer, leave it blank on the first time through. Go on to the other questions, as they may provide a clue as to how to answer the skipped questions. If later on, you still cannot answer the skipped ones...**guess**. The only penalty for guessing is that you *might* get it wrong. Only one thing is certain; if you do not put anything down, you will get it wrong!
3. **Turn the question into a statement.** Look at the wording of the questions. The syntax of the question usually provides a clue. Does it seem more familiar as a statement rather than as a question? Does it sound strange? By turning a question into a statement, you may be able to spot if an answer sounds right, and it may trigger memories of material you have read.
4. **Look for hidden clues.** It is actually very difficult to compose multiple-foil (choice) questions without giving away part of the answer in the options presented. In most multiple-choice questions, you can often readily eliminate one or two of the potential answers. This leaves you with only two real possibilities and automatically your odds go to fifty-fifty for very little work.
5. **Trust your instincts.** For every fact that you have read, you subconsciously retain something of that knowledge. On questions about which you are not really certain, go with your basic instincts. **Your first impression on how to answer a question is usually correct.**
6. **Mark your answers directly on the test booklet.** Do not bother trying to fill in the optical scan sheet on the first pass through the test. *Mark your answers carefully when you transcribe them to the scan sheet.*
7. **Watch the clock!** You have a set amount of time to answer the questions. Do not get bogged down trying to answer a single question at the expense of ten questions you can more readily answer.

1. **When designing a scientific experiment, a student considers all the factors that may influence the results. The goal is to _____.**
(Average Rigor)

- A. Recognize and manipulate independent variables.
- B. Recognize and record independent variables.
- C. Recognize and manipulate dependent variables.
- D. Recognize and record dependent variables.

2. **When measuring the volume of water in a graduated cylinder, where does one read the measurement?**
(Average Rigor)

- A. At the highest point of the liquid
- B. At the bottom of the meniscus curve
- C. At the closest mark to the top of the liquid
- D. At the top of the plastic safety ring

3. **Which of these is the best example of 'negligence'?**
(Easy)

- A. A teacher fails to give oral instructions to those with reading disabilities.
- B. A teacher fails to exercise ordinary care to ensure safety in the classroom.
- C. A teacher does not supervise a large group of students.
- D. A teacher reasonably anticipates that an event may occur, and plans accordingly.

4. **Formaldehyde should not be used in school laboratories for the following reason:**
(Average Rigor)

- A. It smells unpleasant.
- B. It is a known carcinogen.
- C. It is expensive to obtain.
- D. It is explosive.

5. **A boulder sitting on the edge of a cliff has which type of energy?**
(Easy)

- A. Kinetic energy
- B. Latent Energy
- C. No energy
- D. Potential Energy

6. **Which of the following statements describes an isotope of an element?**
(Rigorous)
- A. An isotope has a different number of electrons.
 - B. An isotope has a different number of neutrons.
 - C. The arrangement of the electrons is different.
 - D. An isotope has a different number of protons.

7. **The Law of Conservation of Energy states that _____.**
(Average Rigor)
- A. There must be the same number of products and reactants in any chemical equation.
 - B. Mass and energy can be interchanged.
 - C. Energy is neither created nor destroyed, but may change form.
 - D. One form energy must remain intact (or conserved) in all reactions

8. **All of the following are considered Newton's Laws except:**
(Easy)
- A. An object in motion will continue in motion unless acted upon by an outside force.
 - B. For every action force, there is an equal and opposite reaction force.
 - C. Nature abhors a vacuum.
 - D. Mass can be considered the ratio of force to acceleration.

9. **A 10 ohm resistor and a 50 ohm resistor are connected in parallel. If the current in the 10 ohm resistor is 5 amperes, the current (in amperes) running through the 50 ohm resistor is**
(Rigorous)
- A. 1
 - B. 50
 - C. 25
 - D. 60

10. Which group of metals is the most chemically active?
(Average Rigor)

- A. Alkaline Earth Metals
- B. Transition elements
- C. Alkali Metals
- D. Metalloids

11. Which of the following statements are true of all transition elements?
(Rigorous)

- A. They are all hard solids at room temperature.
- B. They tend to form salts when reacted with Halogens.
- C. They all have a silvery appearance in their pure state.
- D. All of the Above

12. The chemical equation for water formation is: $2\text{H}_2 + \text{O}_2 \rightarrow 2\text{H}_2\text{O}$. Which of the following is an incorrect interpretation of this equation?
(Rigorous)

- A. Two moles of hydrogen gas and one mole of oxygen gas combine to make two moles of water
- B. Two grams of hydrogen gas and one gram of oxygen gas combine to make two grams of water
- C. Two molecules of hydrogen gas and one molecule of oxygen gas combine to make two molecules of water
- D. Four atoms of hydrogen (combined as a diatomic gas) and two atoms of oxygen (combined as a diatomic gas) combine to make two molecules of water

13. A cup of hot liquid and a cup of cold liquid are both sitting in a room at a temperature of 72 degrees Fahrenheit and 25% humidity. Both cups are made of thin plastic. Which of the following is a true statement?
(Easy)

- A. There will be condensation on the outside of both cups.
- B. There will be condensation on the outside of the hot liquid cup, but not on the cold liquid cup.
- C. There will be condensation on the outside of the cold liquid cup, but not on the hot liquid cup.
- D. There will not be condensation on the outside of either cup.

14. Carbon forms bonds with hydrogen by _____ .
(Rigorous)

- A. Ionic bonding
- B. Non-polar covalent bonding
- C. Polar covalent bonding
- D. Strong nuclear force

15. Which of the following is a correct definition for 'chemical equilibrium'?
(Average Rigor)

- A. Chemical equilibrium occurs when the forward and backward reaction rates are equal. The reaction may continue to proceed forward and backward.
- B. Chemical equilibrium occurs when the forward and backward reaction rates are equal, and equal to zero. The reaction does not continue.
- C. Chemical equilibrium occurs when there are equal quantities of reactants and products.
- D. Chemical equilibrium occurs when acids and bases neutralize each other fully.

16. The first stage of mitosis is called _____ .
(Average Rigor)

- A. Telophase
- B. Anaphase
- C. Prophase
- D. Metaphase

17. Which cellular organelle contains the food and other materials needed by the cell.
(Rigorous)

- A. Vacuoles
- B. Golgi Apparatus
- C. Ribosomes
- D. Lysosomes

18. A child has type O+ blood. Her father has type A+ blood, and her mother has type B- blood. What are the genotypes of the father and mother, respectively?
(Rigorous)

- A. AO+ - and BO - -
- B. AO+ + and BO - -
- C. AO+ + and BO + -
- D. Cannot determine both parents genotype from the information provided

19. A duck's webbed feet are an example of _____ .
(Easy)

- A. Mimicry
- B. Structural adaptation
- C. Protective resemblance
- D. Protective coloration

20. Which part of a plant is responsible for transporting water?
(Easy)

- A. Phloem
- B. Xylem
- C. Stomata
- D. Cortex

21. What are the most significant and prevalent elements in the biosphere?
(Easy)

- A. Carbon, Hydrogen, Oxygen, Nitrogen, Phosphorus
- B. Carbon, Hydrogen, Sodium, Iron, Calcium
- C. Carbon, Oxygen, Sulfur, Manganese, Iron
- D. Carbon, Hydrogen, Oxygen, Nickel, Sodium, Nitrogen

22. Lithification refers to the process that creates _____ .
(Rigorous)

- A. Metamorphic rocks.
- B. Sedimentary rocks.
- C. Igneous rocks.
- D. Lithium oxide.

23. Which of the following is the longest (largest) unit of geological time? (Average Rigor)

- A. Era
- B. Epoch
- C. Period
- D. Eon

24. The salinity of ocean water is closest to _____ . (Easy)

- A. 0.035 %
- B. 0.5 %
- C. 3.5 %
- D. 15 %

25. Surface ocean currents are caused by which of the following? (Rigorous)

- A. Temperature
- B. Changes in density of water
- C. Wind
- D. Tidal forces

26. Which of the following is the most accurate definition of a non-renewable resource? (Average Rigor)

- A. A non-renewable resource is never replaced once used.
- B. A non-renewable resource is replaced on a timescale that is very long relative to human life-spans.
- C. A non-renewable resource is a resource that can only be manufactured by humans.
- D. A non-renewable resource is a species that has already become extinct.

27. Which of the following is the least ethical choice for a school laboratory activity? (Average Rigor)

- A. A genetics experiment tracking the fur color of mice
- B. Dissection of a preserved fetal pig
- C. Measurement of goldfish respiration rates at different temperatures
- D. Pithing a frog to observe the circulatory system

28. **When heat is added to most solids, they expand. Why is this the case?**
(Average Rigor)
- A. The molecules become larger.
 - B. The increased molecular motion leads to greater distance between the molecules.
 - C. The molecules develop greater repelling electric forces when heated.
 - D. The molecules form a more rigid structure.

29. **Which of the following units is not a measure of distance?**
(Easy)

- A. AU (astronomical unit)
- B. Light year
- C. Parsec
- D. Lunar year

30. **Extensive use of antibacterial soap has been found to increase the virulence of certain viral strains infections in hospitals. Which of the following might be an explanation for this phenomenon?**
(Average Rigor)

- A. Antibacterial soaps do not kill viruses.
- B. Antibacterial soaps do not incorporate the same antibiotics used as medicine.
- C. Antibacterial soaps kill a lot of bacteria, and only the hardiest ones survive to reproduce.
- D. Antibacterial soaps can be very drying to the skin.

Answer Key

1. A
2. B
3. B
4. B
5. D
6. B
7. C
8. C
9. A
10. C
11. B
12. B
13. C
14. C
15. A
16. C
17. A
18. D
19. B
20. B
21. A
22. B
23. D
24. C
25. C
26. B
27. D
28. B
29. D
30. C