



SECTION 4

TEST II SAMPLE QUESTIONS

This section of the Georgia Assessments for the Certification of Educators® (GACE™) Preparation Guide provides sample selected-response questions with an annotated answer key for you to review as part of your preparation for the test. The sample selected-response questions are designed to illustrate the nature of the test questions. Work through the questions carefully before referring to the annotated answer key, which follows the sample selected-response questions. The answer key provides the correct response to each question, describes why each correct response is the best answer, and lists the objective within the test framework to which each question is linked.

QUESTIONS

1. **Read the word problem below; then answer the question that follows.**

A farmer plants half of a rectangular field with potatoes and half of the other side with pumpkins. One half of the remaining space is planted with lettuce and the other half with tomatoes. If the total length of the field is 80 feet and the area of the field is 4,800 square feet, how much of the field is planted with tomatoes?

Which of the following is the best strategy to use to solve the problem above?

- A. Estimate.
 - B. Draw a diagram.
 - C. Guess and check.
 - D. Look for a pattern.
2. **Use the numbers below to answer the question that follows.**

6,824 6,964 7,003 856

If the numbers above are each rounded to the hundreds place and then added together, what will the sum be?

- A. 20,000
- B. 21,600
- C. 21,700
- D. 22,000

3. A homeowner has 156 feet of fencing available to enclose a rectangular garden. If the length of the garden, d , is to be 4 feet greater than the width, w , which of the following equations can be used to determine the width of the garden?

A. $2w + 2(w + 4) = 156$

B. $2d + 2(d + 4) = 156$

C. $w(w + 4) = 156$

D. $d(d + 4) = 156$

4. **Read the word problem below; then answer the question that follows.**

Tasha is thinking of a number. If she adds 5 to the number, divides the result by 3, and multiplies the resulting number by 8, she will get 4^3 . What is the original number?

Which of the following algebraic expressions can be used to solve the word problem shown above?

A. $\frac{x+5}{3} \times \frac{8}{3} = 4^3$

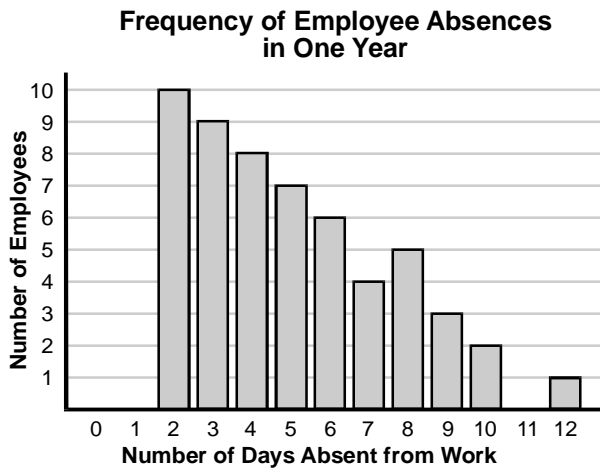
B. $\left(\frac{x}{3} + 5\right) \times 8 = 4^3$

C. $\frac{(x+5)}{3} \times 8 = 4^3$

D. $\left(x + \frac{5}{3}\right) \times 8 = 4^3$

Section 4: Test II Sample Questions

5. Use the information below to answer the question that follows.



A company has 55 employees. The owner of the company produces the frequency chart shown above to help plan for employee absences in the coming year. Which of the following statements concerning employee absenteeism is consistent with the data depicted in the frequency chart above?

- A. Five employees are absent for seven or fewer days during the year.
- B. More than half of the employees are absent for five or fewer days during the year.
- C. Three employees are absent for nine or more days during the year.
- D. More than half of the employees are absent for more than seven days during the year.

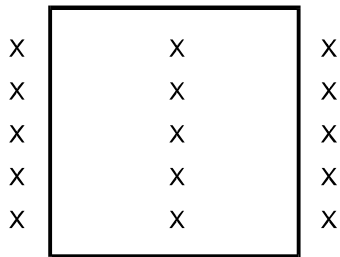
Section 4: Test II Sample Questions

6. After spending an afternoon in a movie theater, people walk outside to find that the temperature has dropped and that it has started to rain. One person states that a weather front must have passed through the area. This person's statement is an example of which of the following principles of scientific inquiry?
- A. making an observation
 - B. forming a hypothesis
 - C. analyzing data
 - D. identifying variables
7. Which of the following geologic deposits would be most likely to hold the fossilized remains of organisms?
- A. a sedimentary rock of marine origin
 - B. a large lava flow from a volcano
 - C. a thick layer of sand near a river
 - D. a granite boulder carried by a glacier
8. A person uses a lever to lift a heavy object. The primary advantage of using the lever is that it:
- A. decreases the force the person must apply to lift the object.
 - B. decreases the total energy the person expends lifting the object.
 - C. improves the efficiency with which the person lifts the object.
 - D. increases the rate at which work is done lifting the object.

Section 4: Test II Sample Questions

9. In the nineteenth century, Gregor Mendel demonstrated that sometimes a genetic trait that is expressed in a parent is not expressed in any of the offspring. The original parental trait, however, can reappear in the next generation. Which of the following best explains this phenomenon?
- A. Paternal traits are often masked by maternal traits.
 - B. Genetic traits are sometimes lost when being passed from one generation to the next.
 - C. Mutations in genetic material result in the loss of inherited traits.
 - D. Dominant genetic traits mask the expression of recessive genetic traits.
10. A vaccination is effective at preventing a particular disease primarily because the vaccine:
- A. contains antibodies that destroy the disease pathogen before it spreads beyond the site of infection.
 - B. boosts the body's immune response to the disease if a person is later infected.
 - C. alters the disease pathogen so that it is harmless when it reproduces within the body.
 - D. protects individual cells within the body from infection if a person is later exposed to the disease.

11. Use the information below to answer the question that follows.



Each X represents a child.

Fifteen young children are separated into one group of five and one group of ten. As shown in the diagram above, the group of five spreads out to form a line within a defined square, and the remaining ten children place themselves across from each other on either side of the square. The children who are facing each other on either side of the square roll balls back and forth. The children in the square try not to be hit by the balls, while also avoiding bumping into the other children. This activity would be most effective for helping the children in the square develop:

- A. eye-hand coordination.
- B. fine motor skills.
- C. spatial awareness.
- D. static balance.

12. While looking at a painting of a landscape, an observer notices that the objects painted toward the bottom of the canvas overlap the objects painted toward the top of the canvas. Which of the following visual art concepts is best achieved with the overlapping technique used by the artist?

- A. motion
- B. perspective
- C. texture
- D. contrast

ANNOTATED ANSWER KEY

For question	The correct response is	Reason	Test Objective
1	B	The problem involves making successive divisions of a rectangular field of known length and total area. Each section planted with a different crop is a fractional part of the entire field. Given the geometric nature of the problem and the information that is given, drawing a diagram would be the best strategy of those listed for working methodically through the problem.	0013
2	C	When rounded to the hundreds place, the numbers given in the problem become 6,800; 7,000; 7,000; and 900. These numbers added together equal 21,700.	0014
3	A	This problem deals with the perimeter of a rectangle, which is the sum of the length of the four sides. The perimeter of the rectangular garden could be represented as two times the width plus two times the length ($2w + 2d$), but to determine the width, the problem needs to be solved for w . Since it is given that the length of the garden is 4 feet greater than the width, another way to represent the length is $d = w + 4$. Substituting this into the expression $2w + 2d$ gives $2w + 2(w + 4) = 156$ (the perimeter of the garden).	0015
4	C	This question requires translating a word problem into an algebraic equation using correct mathematical notation. The unknown number in the problem is represented by x . First, 5 is added to x , represented by $(x + 5)$. The sum of $(x + 5)$ is then divided by 3, represented by $\frac{(x + 5)}{3}$. This quotient is then multiplied by 8, represented by $\frac{(x + 5)}{3} \times 8$. The full equation using correct notation to show this series of steps is represented by $\frac{(x + 5)}{3} \times 8 = 43$.	0016
5	B	According to the data displayed in the frequency chart, the number of employees absent for five or fewer days was 34 (10 employees absent for 2 days, 9 absent for 3 days, 8 absent for 4 days, and 7 absent for 5 days), which is more than half of the 55 total employees.	0017
6	B	A hypothesis is an idea or statement that can be tested scientifically by experiment or observation. The person in the scenario has made a statement that can be tested by collecting additional scientific data and making observations of similar weather events.	0018

Section 4: Test II Sample Questions

For question	The correct response is	Reason	Test Objective
7	A	Fossils are the remnants or impressions of ancient organisms. Sedimentary rocks form when sediments such as pieces of rocks, minerals, and sand solidify. The process of fossilization can occur when layers of sediment cover the remains of organisms under appropriate conditions. Fossils are often found in sedimentary rocks formed in marine environments, since the remains are less likely to be disturbed and destroyed than in terrestrial environments.	0019
8	A	A lever is a simple machine used to amplify physical force. In the scenario described, the person would have to use much greater force to lift the object directly, but the lever multiplies the force and allows the person to achieve the same goal with less force.	0020
9	D	Mendel experimented with pea plants and chose to study traits that were expressed in two alternative forms—for example, tall stems versus short stems. Even though all of the offspring of a tall-stem plant and a short-stem plant were tall, regardless of which original parent plant contributed the male or female germ cell, a predictable proportion of the plants in the next generation had short stems. Mendel hypothesized that the short-stem trait was still present in the first generation of offspring but was recessive to the tall-stem trait. When two copies of the short-stem trait paired up again in some plants of the next generation, the short-stem trait reappeared.	0021
10	B	Vaccination introduces weakened or killed microbes into the body. This prompts the immune system to produce antibodies. Upon subsequent infection by the microbe, the body is able to mount a rapid immune response to kill off the microbes before they can multiply and cause disease symptoms.	0022
11	C	This activity requires the children to move around in a defined space. Not only do the children have to be aware of their own locations and movements within that space, but they also need to track the movements of the other children and the rolling balls. Therefore, of the skills listed, this activity will be most effective in promoting the children's spatial awareness.	0023
12	B	Perspective is a technique often used by artists to provide a sense of depth and volume in two-dimensional paintings. Placing some objects near the bottom of the canvas and having them overlap objects higher on the canvas gives the illusion that the objects near the bottom are closer to the observer than those near the top.	0024