



**Georgia Assessments for the
Certification of Educators®**

PREPARATION GUIDE

Agricultural Education





AGRICULTURAL EDUCATION

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SECTION I

PREPARING FOR THE TEST

The purpose of the Georgia Assessments for the Certification of Educators® (GACE™) is to assess the knowledge and skills of prospective Georgia public school educators. The GACE program helps the Georgia Professional Standards Commission (PSC) meet its goal of ensuring that candidates have the knowledge and skills needed to perform the job of an educator in Georgia public schools. The GACE are aligned with state and national standards for educator preparation and with state standards for the P–12 student curriculum (Georgia Performance Standards).

This preparation guide provides information to help you prepare to take the GACE as follows:

- ▶ This section includes information about available resources and their use in understanding the design and content of the assessment, and strategies for success on the day of the test.
- ▶ The following sections contain sample test questions and additional test materials to assist you in your preparation.

UNDERSTANDING THE DESIGN AND CONTENT OF THE TEST

The content knowledge assessed by the GACE is described in the test design and framework for each assessment. You may view, print, or download the test design and framework for any GACE assessment by selecting "Test Designs and Frameworks" on the GACE Web site at www.gace.nesinc.com. This section describes how to use the test design and framework to understand both the design and content of each GACE assessment.

■ Test Design

Read the test design to familiarize yourself with the structure of the **assessment**. The test design outlines the **content areas covered on each test** within the assessment, the **approximate number of questions** for each content area, and the **types of questions** (selected response and constructed response) contained on each test.

Section I: Preparing for the Test

The following example illustrates the information provided by the test design.

Assessment → **Early Childhood Education**

Test I (Test Code 001)		Approximate Number of Selected-Response Questions	Constructed-Response Assignments
Subareas:	Objectives		
➤ Reading and English Language Arts	0001–0008	40	1
➤ Social Studies	0009–0012	20	1
TOTAL		60	2
Test II (Test Code 002)			
Subareas:	Objectives	Approximate Number of Selected-Response Questions	Constructed-Response Assignments
➤ Mathematics	0013–0017	25	1
➤ Science	0018–0021	20	1
➤ Health, Physical Education, and the Arts	0022–0024	15	
TOTAL		60	2

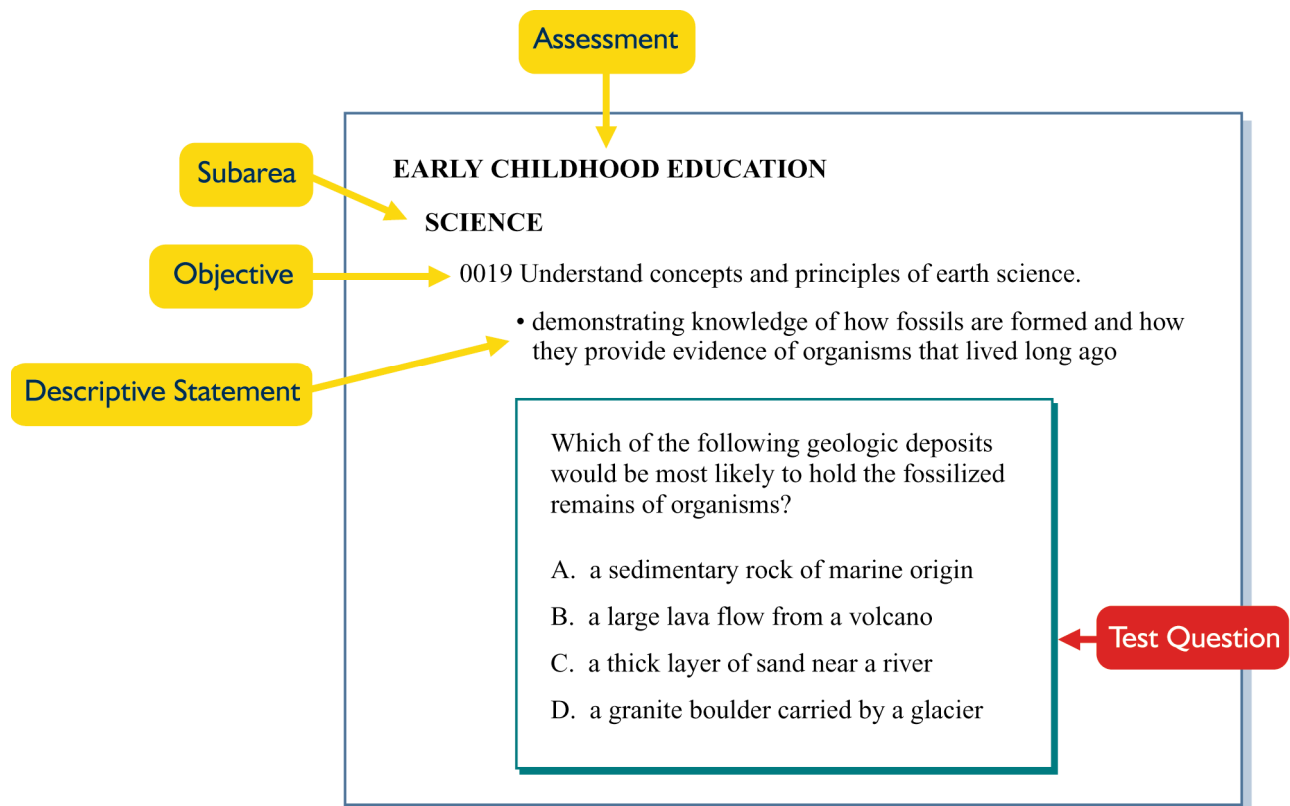
■ Test Framework

Read the test framework to understand the content covered by the assessment and to determine your preparedness to test. The test framework for each **assessment** is organized into subareas, objectives, and descriptive statements as follows:

- ▶ **Subareas** define the major content domains of the test. Subareas typically consist of several objectives. The number of objectives may vary, depending on the breadth of content contained in the subarea.
- ▶ **Objectives** define the knowledge and skills that Georgia educators and teacher educators have determined to be important for educators to possess. Each objective is expanded upon by descriptive statements.
- ▶ **Descriptive statements** provide examples of the range, type, and level of content that may appear on the test for questions measuring the objective.

Test questions are designed to measure specific test objectives. The number of objectives within a subarea generally determines the number of selected-response test questions that will address that subarea's content on the test. Subareas that consist of more objectives will receive more emphasis on the test than subareas that consist of fewer objectives.

The following example from the Early Childhood Education test framework illustrates the relationship of a selected-response test question to the subarea, objective, and descriptive statement in the framework to which it corresponds. This same direct relationship between selected-response test questions and their corresponding objectives applies to all GACE assessments.



STRATEGIES FOR SUCCESS ON THE DAY OF THE TEST

Review the following strategies to help you do your best when taking the GACE.

Follow directions

Listen to and follow all test directions. This includes the oral directions that will be read by the test administrators and any written directions in the test booklet.

Pace your work

The test schedule is designed to allow sufficient time for you to complete your test booklet(s). You may wish to page through the test booklet when you are instructed to begin testing to help you gauge how to pace yourself. Remember to leave enough time to respond to any constructed-response assignments.

Read carefully

Do not try to save time by skimming directions or by reading the test questions quickly. You may miss important information and instructions.

Determine the "best answer"

Your response to each selected-response question should be the best answer of the alternatives provided. Read and evaluate all four answer choices before deciding which one is best.

Guess wisely

Your results on the selected-response section of the test will be based on the number of questions you answer correctly. You will not be penalized for guessing. If you are unsure about a question, use your knowledge of the content area to eliminate as many of the alternatives as you can. Then select among the remaining choices.

Mark your answers carefully

Your responses to the selected-response questions will be scored electronically. It is very important for you to mark your answers carefully and to erase any stray marks completely. If you skip a question, be sure that you skip the corresponding row of answer choices on the answer sheet.

Check your accuracy

Use any remaining time at the end of the test session to check the accuracy of your work. Make sure that you have filled in the appropriate bubbles on the answer sheet and that you have completely erased any stray marks.

Respond to the constructed-response assignment(s) fully and clearly

If the test you are taking contains a constructed-response assignment, be sure to read and respond to each part of the assignment. It is important for scorers to be able to understand your response. Also, make sure that you have recorded your response to the constructed-response assignment as instructed.



SECTION 2

TEST I 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.

Section 2: Test I Sample Questions

QUESTIONS

1. Which of the following acts of Congress was passed in 1887 and was primarily responsible for the establishment of agricultural experiment stations?
 - A. Hatch Act
 - B. Perkins Act
 - C. Morrill Act
 - D. Smith-Lever Act

2. Which of the following statements best describes the total program approach in agricultural education?
 - A. Agricultural education combines classroom learning with hands-on experience gained from laboratory activities and field trips to actual agricultural businesses.
 - B. Agricultural education integrates classroom and laboratory instruction with experiential learning gained from participation in the FFA and supervised agricultural experiences.
 - C. Agricultural education incorporates a variety of techniques for assessing student learning, including formal testing, teacher observation, and student portfolios.
 - D. Agricultural education requires students to learn material from a wide range of subjects areas and academic programs, including business, science, and technology.

3. Which of the following statements most accurately describes how the Future Farmers of America (FFA) was founded?
 - A. In 1880, the federal government appropriated money to establish FFA chapters in high school vocational education programs.
 - B. In 1902, several colleges with student-run agricultural clubs established FFA affiliates with local high schools.
 - C. In 1928, students at a national conference modeled the FFA on similar organizations that already existed in several states.
 - D. In 1935, individual 4-H clubs located in seventeen states decided to incorporate and form a national FFA organization.

4. Rags that have been used to clean oil from agricultural equipment should be stored in a tightly sealed metal container and disposed of at the end of the day because oily rags:
 - A. are attractive to rodents and may lead to problems with infestation.
 - B. may spontaneously combust and start a fire.
 - C. may be an environmental hazard if they contact soil or water.
 - D. are caustic and contact with them may damage skin.

5. An entrepreneur wishes to start a small business growing and selling a variety of fresh vegetables directly to the public. When the entrepreneur is writing a startup business plan for the business, which of the following should be considered the most important component?
- A. a list of the products that will be offered and detailed descriptions of the methods and techniques used to grow and prepare each product
 - B. a summary of the problems that the business might encounter and several alternative courses of action if the business fails to succeed
 - C. a statement of the goals and objectives of the proposed business and a summary of the strategies and tactics for achieving those goals
 - D. a summary of the management skills needed to start the business and the steps that the entrepreneur will take to acquire those skills
6. Which of the following is the best example of using a product differentiation strategy to sell an agricultural product?
- A. placing the words "Homemade" and "No Artificial Ingredients" prominently on the label of jams
 - B. pricing peaches at cost in order to undercut competitors
 - C. offering free samples of fresh vegetables to restaurant chefs who are potential customers
 - D. raising the price of broilers when demand for chicken increases
7. Which of the following steps should be taken when a small engine will not be used for several months?
- A. Remove the spark plug to allow air to circulate through the cylinder.
 - B. Open the choke to allow gas fumes to dissipate.
 - C. Drain all engine oil from the crankcase.
 - D. Drain the gas tank or add stabilizer to the fuel.

Section 2: Test I Sample Questions

8. The use of a template to lay out a design on wood or metal would be most advisable when:
- A. a design contains a polygon with equal sides and angles, such as an octagon or hexagon.
 - B. it is necessary to make many identical curved or irregularly shaped pieces.
 - C. a long piece of wood or metal must be divided into several pieces of identical length.
 - D. it is necessary to draw an arc, circle, or oval in a design.
9. The most appropriate use of pressure-treated lumber on a horse farm would be for which of the following applications?
- A. sills between a concrete foundation and the walls of a barn
 - B. boards for a fence surrounding the pasture
 - C. frames of outside feed and water troughs
 - D. floorboards and partitions of interior stalls in a barn

ANNOTATED ANSWER KEY

For question	The correct response is	Reason	Test Objective
1	A	In 1887, the United States Congress passed the Hatch Act, which provided federal grants to states for basic and applied research in agriculture. Research was to be conducted at each state's land grant college in cooperation with the United States Department of Agriculture (USDA). This led directly to the establishment of agricultural experiment stations connected to state land-grant colleges.	0001
2	B	The total program approach in agriculture involves the integration of classroom and laboratory instruction, supervised agricultural experience (SAE), and participation in the FFA. In this approach, knowledge gained in the classroom and laboratory is applied in a student's SAE. The SAE provides hands-on experience in a field of agriculture. Participation in the FFA provides leadership opportunities for the student, teaches values such as cooperation and discipline, and provides additional experiential learning opportunities through FFA competitions and activities.	0002
3	C	In 1926, Henry Groseclose organized a Future Farmers Club of Virginia for students enrolled in agriculture classes. Several other states quickly followed suit. In 1928, a group of students used these state clubs as a model and founded the Future Farmers of America (FFA) in Kansas City as a national organization for agriculture students.	0003
4	B	Spontaneous combustion takes place when fire breaks out without the application of heat from an external source. It occurs when slow oxidation of combustible materials produces heat that cannot be easily dissipated, as in the center of a pile of oily rags. Eventually the temperature rises sufficiently to the point at which a fire starts. Oily rags that are left in a pile over a period of time create ideal conditions for spontaneous combustion.	0004
5	C	Setting out concrete goals in a business plan and outlining how they will be achieved provides a necessary framework for decision making about financing, location, selling strategy, and all other aspects of the business. In addition, one purpose of many business plans is to attract financial backers to the business. Before providing resources to the entrepreneur, investors are likely to require a detailed statement summarizing the goals of the business and the strategies for achieving these goals.	0005

Section 2: Test I Sample Questions

For question	The correct response is	Reason	Test Objective
6	A	A product differentiation sales strategy is one in which the seller attempts to make a product appear different from, and superior to, its competitors. In this strategy, the goal is to influence customer perceptions by making the product stand out in some way. Attaching a fancy label, packaging the product attractively, or adding descriptions, such as "homemade" or "all natural ingredients," serve to increase the perceived value of the product in the mind of the customer.	0006
7	D	Gasoline left in a small engine for several months (e.g., in a lawn mower over the winter) will go stale and leave deposits in the carburetor that will interfere with proper operation. For this reason, manufacturers recommend that the gas tank of power equipment be drained or run dry, or that stabilizer be added to the fuel before the equipment is put into storage.	0007
8	B	A template is a pattern made of wood, paper, or other material. Templates are usually placed on wood or metal sheet stock and traced in order to produce multiple pieces with the same shape. Templates are especially useful when the pieces to be produced cannot be easily drawn using standard drafting techniques, such as when a piece is curved or irregularly shaped.	0008
9	A	Pressure-treated lumber is used in applications where moist conditions may cause standard lumber to rot. Typical applications might include landscape timbers, posts, and sills between concrete foundations and walls. Pressure-treated lumber may be toxic to farm animals and should not be used in applications where animals can chew or lick the wood.	0009



SECTION 3

TEST I SAMPLE CONSTRUCTED-RESPONSE ASSIGNMENTS

This section of the Georgia Assessments for the Certification of Educators® (GACE™) Preparation Guide is designed to assist you in responding to the constructed-response assignments on the test. Included in this section are:

- ▶ Constructed-response assignment directions
- ▶ Sample constructed-response assignments
- ▶ Assignment response sheets
- ▶ An example of a strong response to each sample assignment
- ▶ Scoring criteria that will be used in evaluating your response to each assignment

For each sample assignment, you may want to take the following steps to prepare for the test:

- Review the constructed-response assignment directions.
- Print the assignment and the assignment response sheet.
- Use scrap paper to make notes, write an outline, or otherwise prepare your response.
- Use the assignment response sheet to record your response. The assignment response sheet reflects the amount of space available on an actual test.
- After you complete the assignment, review the sample strong response, your response, and the scoring criteria.

CONSTRUCTED-RESPONSE ASSIGNMENT DIRECTIONS

A sample of the directions for the constructed-response assignments is shown in the box below.

CONSTRUCTED-RESPONSE ASSIGNMENT DIRECTIONS

For each constructed-response assignment in this section, you are to prepare a written response of up to one page and record it in the area provided on the appropriate Assignment Response Sheet in your answer document.

Read each assignment carefully before you begin to write. Think about how you will organize what you plan to write. You may use any blank space provided in this test booklet following each assignment to make notes, write an outline, or otherwise prepare your response. *However, each of your final responses must be written on the appropriate Assignment Response Sheet in your answer document.*

Your responses will be evaluated based on the following criteria:

- **Purpose:** The extent to which the response fulfills the purpose of the assignment in relation to relevant GACE framework objectives
- **Application of Content Knowledge and Skills:** The extent to which the response accurately and effectively applies content knowledge and skills in relation to relevant GACE framework objectives
- **Supporting Evidence:** The extent to which the response includes appropriate, specific supporting evidence of content knowledge and skills in relation to relevant GACE framework objectives

Evaluation of each response will be based on the criteria above, not on your writing ability. However, your response must be communicated clearly enough to permit a valid judgment of your knowledge and skills. Your responses should be written for an audience of educators in the field.

Your responses should be your original work, written in your own words, and not copied or paraphrased from some other work. Please write legibly. You may not use any reference materials during the test. Remember to review your work and make any changes you think will improve your responses.

The selected-response section of the answer document containing your name will be removed from your written responses to maintain your anonymity during the scoring process. Do not write your name on any other portion of the answer document, and do not separate any of the sheets from the document.

Please turn the page and begin the constructed-response assignment section of the test.

CONSTRUCTED-RESPONSE ASSIGNMENT ONE

■ Sample Constructed-Response Assignment One

Use the information below to complete the assignment that follows.

You have placed two students in a supervised agricultural experience that involves working with several university students who are collecting data on the numbers and health of several species of wildlife in the area. The students will primarily perform tasks outdoors in a variety of habitats, including heavy undergrowth, meadows, swamps, and river bottoms.

- Describe one potential hazard associated with these tasks; and
- describe one action you might take to help ensure the safety of participants.

■ Strong Response to Sample Constructed-Response Assignment One

If students will be gathering data in habitats that include heavy undergrowth or swamps, they may encounter poisonous plants (poison ivy, poison oak, poison sumac) and poisonous snakes (copperhead snakes, water moccasins). Even non-poisonous plants such as brambles can cause welts and scratches that should be treated to prevent infection. Insects, such as ticks, chiggers, and mosquitoes, can cause bothersome skin irritations that can last for days and may become infected. In addition, some insects can carry serious disease such as Lyme disease.

First, I would educate students about these hazards by using pictures to teach them how to recognize poisonous plants and how to distinguish between poisonous and non-poisonous snakes that may be found in the area. I would also explain where poisonous snakes are likely to be found—for example, water moccasins inhabit swampy areas. I would review first-aid treatments for snakebite and recommend that students carry a snakebite kit. I would advise students to wear protective clothing when in the field. Long-sleeve shirts and long pants of appropriate seasonal weight should be worn to prevent sun burn and insect bites, and to protect one's legs from being lashed by briars or touched by poisonous plants. Footwear such as high-top, leather boots help protect against snakebites. A hat or cap keeps one's head protected from the sun in summer and prevents heat loss in the winter. Finally, students should use sunscreen and effective insect repellents, remain vigilant during the activity, and check themselves for ticks upon returning home.

CONSTRUCTED-RESPONSE ASSIGNMENT TWO

■ Sample Constructed-Response Assignment Two

Use the information below to complete the assignment that follows.

The owner of a 40-acre farm grows a variety of vegetables (e.g., tomatoes, peppers, summer squash, collards). The farm is located on a well-traveled highway near a medium-sized town.

- Identify one likely local target market for the fresh vegetables grown on the farm and briefly describe one way that the farmer could sell his/her fresh vegetables to members of this target market; and
- describe one strategy that the farmer might use to add value to the fresh vegetables and potentially increase the revenue from their sale.

Section 3: Test I Sample Constructed-Response Assignments

■ Strong Response to Sample Constructed-Response Assignment Two

Because of the farm's location, a roadside stand would likely be an effective means of marketing the farm's products. The target market would consist of travelers on the road, so marketing strategies should focus on informing these people about the farm and its products and persuading them to stop at the stand. An effective way of accomplishing this would be to post signs along the highway listing some of the produce available and the location of and distance to the stand. Potential customers must quickly make up their minds whether to stop, so it is important that the stand be easy to access and have adequate parking. If possible, the stand should be located along a straight stretch of road where it is safe to get on and off the highway.

Adding value to fresh produce can be accomplished in a variety of ways. Attractive packaging of certain items can increase their value. For example, cherry tomatoes can be sold by the basket rather than by the pound. Adding value by completing initial preparation stages for an item is another viable strategy. For example, refrigerated cut slices of watermelon will bring a higher per pound price than whole watermelons. Lettuce can be carefully trimmed and washed; various types of greens can be washed and sold together as salad mixes or cooking greens; and vegetables such as okra and squash can be cut and packaged as soup mixes. Selling fully prepared products greatly increases the value of the produce used as ingredients. For example, pickled beets would command a much higher price than the same beets sold straight from the field.

CRITERIA FOR SCORING YOUR RESPONSE

Each response will be evaluated based on the following criteria.

PURPOSE	The extent to which the response fulfills the purpose of the assignment in relation to relevant GACE framework objectives
APPLICATION OF CONTENT KNOWLEDGE AND SKILLS	The extent to which the response accurately and effectively applies content knowledge and skills in relation to relevant GACE framework objectives
SUPPORTING EVIDENCE	The extent to which the response includes appropriate, specific supporting evidence of content knowledge and skills in relation to relevant GACE framework objectives

Each response is rated on a three-point scale. The three score points of the score scale correspond to varying degrees of performance that are related to the above criteria.

Score	Description
3	<p>The "3" response reflects thorough understanding of relevant content knowledge and skills as defined in relevant GACE framework objectives.</p> <ul style="list-style-type: none"> • The response fully achieves the purpose of the assignment. • The response demonstrates an accurate and effective application of relevant content knowledge and skills. • The response provides appropriate, specific supporting evidence of relevant content knowledge and skills.
2	<p>The "2" response reflects general understanding of relevant content knowledge and skills as defined in relevant GACE framework objectives.</p> <ul style="list-style-type: none"> • The response largely achieves the purpose of the assignment. • The response demonstrates a generally accurate, generally effective application of relevant content knowledge and skills. • The response provides some appropriate and general supporting evidence of relevant content knowledge and skills.
1	<p>The "1" response reflects limited or no understanding of relevant content knowledge and skills as defined in relevant GACE framework objectives.</p> <ul style="list-style-type: none"> • The response partially achieves or fails to achieve the purpose of the assignment. • The response demonstrates limited, inaccurate, and/or ineffective application of relevant content knowledge and skills. • The response provides limited or no appropriate, specific supporting evidence of relevant content knowledge and skills.

Please note: A response that is unrelated to the assigned topic, illegible, not primarily in the target language, or lacking a sufficient amount of original work to score will be considered **unscorable**. If there is no response to the assignment, then the response will be considered **blank**.



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

- Which of the following best explains why young ruminants under three months old should not be fed a diet that is high in roughage?
 - Muscular coordination required for chewing the cud is not yet developed.
 - Only one chamber of the stomach is fully developed and functioning.
 - Linings of the mouth, esophagus, and stomach are soft and easily damaged by coarse feeds.
 - Most roughages are unpalatable to young animals.
- Adding which of the following ingredients to a diet of pelleted or crumbled rations for poultry is necessary to allow the birds to properly process and digest their feed?
 - roughage
 - vitamins
 - fats
 - grit
- Which of the following is the most important reason for installing active ventilation systems in confinement houses with manure pits?
 - to provide a steady supply of oxygen to help speed the decomposition of the manure
 - to prevent the buildup of odors that might be bothersome to people living near the facility
 - to prevent the buildup of toxic gases produced by anaerobic decomposition of the manure
 - to lower the humidity so that water is removed from the manure and it is easier to handle
- Soil compaction and loss of permeability are most likely on soils that contain which of the following?
 - a large amount of humus
 - a high percentage of sand
 - a large number of stones
 - a high percentage of clay

Section 4: Test II Sample Questions

5. Gymnosperms are primarily distinguished from angiosperms in which of the following ways?
- A. Gymnosperms do not produce flowers.
 - B. Gymnosperms lack active, vascular cambium layers.
 - C. Gymnosperms have leaves that last for more than one growing season.
 - D. Gymnosperms have taproots rather than extensive fibrous root systems.
6. Which of the following is the primary function of the endosperm in the sexual reproduction of flowering plants?
- A. producing the gametes that unite to form the embryo in the seed
 - B. surrounding and nourishing the embryo in the seed
 - C. forming the fleshy fruit that aids in the dispersal of seeds by vertebrates
 - D. forming the protective shell on the outside of the seed
7. According to government regulations, growers should take which of the following actions to minimize residues when a pesticide must be applied to a crop before harvest time?
- A. Select a pesticide that breaks down quickly.
 - B. Apply the pesticide at strengths much lower than the recommended ones.
 - C. Rinse the crop with water immediately after harvest.
 - D. Apply the pesticide as a dust rather than as a spray.
8. Two weeks before a holiday when high sales volume is expected, container-grown shrubs in a nursery are exhibiting signs of nutrient deficiency. Which of the following is the most effective way to remedy this situation in time for the expected holiday sales?
- A. repotting the shrubs in larger containers with fresh soil
 - B. pruning the shrubs to reduce nutrient requirements
 - C. applying fertilizer directly to the shrubs as a foliar spray
 - D. adding a complete timed-release granular fertilizer to each pot

Section 4: Test II Sample Questions

9. Foliage plants growing in permanent pots in a greenhouse should be periodically flushed with water in order to:
- A. prevent root crowding in the pot by killing some of the weaker roots.
 - B. clear away blockages and improve drainage in the pots.
 - C. remove insect pests that may be present in the soil.
 - D. prevent the buildup of soluble salts in the soil.
10. Which of the following is the best example of substituting a renewable resource for a nonrenewable resource in agricultural production?
- A. A farmer reduces the amount of chemical fertilizer used on a field by planting alfalfa and clover in a crop rotation system.
 - B. A greenhouse operator replaces a natural gas boiler used to heat the houses with a boiler that recycles waste motor oil.
 - C. A farmer reduces the amount of irrigation water used on the farm by planting crops that are better adapted to arid conditions.
 - D. A rancher replaces a windmill used to pump water for stock with an electric pump powered by a set of solar panels.
11. Which of the following best explains why loblolly pine is the most common tree species in Georgia forests?
- A. Loblolly pine is resistant to fire and is well adapted for growing on a wide range of soils, including wet soils and poor, sandy soils.
 - B. Loblolly pine seedlings are able to compete successfully against other tree species for access to nutrients and sunlight.
 - C. Loblolly pine has been planted extensively because it provides a higher return on investment than other tree species.
 - D. Loblolly pine has fewer insect pests than other tree species and is resistant to drought, disease, and wind and ice damage.

ANNOTATED ANSWER KEY

For question	The correct response is	Reason	Test Objective
1	B	At birth, the abomasum is the only part of the ruminant stomach that functions and the rumen is a very small organ found in the upper left part of the abdomen. By two months of age, the rumen has moved into its adult position, and by three months it is large enough to begin to function. Until this time, the young animal cannot digest feed that is high in roughage.	0010
2	D	Like all birds, poultry lack teeth in their bills and cannot chew their food. In the wild, birds that eat food requiring mechanical processing before digestion (e.g., grass, grains) swallow small stones to aid in this process. Poultry that are fed a dry diet such as pelleted or crumbled feeds must also be fed some grit in order to allow them to mechanically process the feed.	0011
3	C	In some types of confinement housing, manure is stored in pits below the floors. These wastes can accumulate and exclude oxygen. Under these conditions, decomposition of manure by anaerobic bacteria can take place. Anaerobic decomposition of manure produces toxic gases, such as ammonia and hydrogen sulfide that can be fatal to humans and livestock. Danger from the build up of toxic gases can be reduced by installing an active ventilation system and by monitoring the level of toxic gases in manure pits.	0012
4	D	Soil compaction occurs when pressure (e.g., from heavy equipment) is applied to a soil and is especially likely if the soil is wet. Compaction reduces pore space by crushing aggregates and forcing particles closer together. Clay particles tend to pack more closely together than silt or sand particles because they are smaller and are often flat. Clay particles also contact one another at numerous points and tend to stick together more tightly than sand or silt particles. Finally, clay soils have smaller pore spaces to begin with and tend to hold more water than silt or sand soils. For all these reasons, compaction is more likely and more serious on soils with a high clay content.	0013
5	A	Seed-bearing plants are classified into two major groups, the gymnosperms and the angiosperms. In the gymnosperms, naked seeds are borne on scales in cones without typical flowers. Most gymnosperms are evergreen, but a significant number (e.g., tamarack, ginkgo) are deciduous. In the angiosperms, seeds are borne in an ovary with typical flowers. Most angiosperms are deciduous, but a significant number are evergreen (e.g., holly, rhododendron, live oak). The primary difference between the two groups is the presence of typical flowers in the angiosperms and the absence of these flowers in the gymnosperms.	0014

Section 4: Test II Sample Questions

For question	The correct response is	Reason	Test Objective
6	B	Most seeds of flowering plants consist of three parts: an embryo, a food storage layer to nourish the embryo, and a seed coat. In most flowering plants, the food storage layer is the endosperm and is derived from the union of a sperm nucleus and the two polar bodies found in the ovule. In some seeds (e.g., orchids) the food storage layer is very small or missing, and in other seeds (e.g., beans, peanuts) food is stored in the seed leaves or cotyledons of the embryo rather than in the endosperm.	0015
7	A	Government regulations limit the amount of pesticide residue that may be present in harvested crops. Pesticides differ in the amount of time it takes for the active ingredients to break down into inert or nontoxic substances. For this reason, regulations also spell out when, in relation to harvest, a particular pesticide can be applied. If a pesticide must be used close to harvest, the grower must limit selections to those pesticides that break down quickly in order to minimize residues on the harvested crop.	0016
8	C	Container-grown shrubs that exhibit signs of nutrient deficiency are less likely to be selected by potential customers. In this case, with only two weeks remaining before sale, it is necessary to reverse the nutrient deficiency rapidly. Foliar feeding, by applying a solution of fertilizer directly to the leaves, is the quickest way to supply nutrients to a plant and reverse a nutrient deficiency.	0017
9	D	Foliage plants growing in permanent pots in a greenhouse must be fertilized regularly to sustain growth and retain color. However, such regular feedings can lead to the buildup of soluble salts in the soil, which can cause desiccation of the roots and death of the plant. To remove these salts, the pot must be regularly flushed with fresh water.	0018
10	A	Alfalfa and clover are legumes that harbor bacteria belonging to the genus <i>Rhizobium</i> in their roots. These bacteria are capable of fixing atmospheric nitrogen in the soil. In this case, the atmospheric nitrogen fixed by the bacteria represents a renewable resource that is substituted for the nitrogen in chemical fertilizer that is produced using nonrenewable resources.	0019
11	A	Loblolly pine is a very common tree species in Georgia, but it is limited in its range to the Southeast because it is susceptible to cold and ice damage in more northern areas. Loblolly grows rapidly on a wide range of soils and under a wide range of conditions. It is also fire resistant and is often a pioneer tree in disturbed habitats. Although not as commercially valuable as many other trees, its ability to tolerate a range of soils means that it is often planted for pulp or paper production.	0020



SECTION 5

TEST II SAMPLE CONSTRUCTED-RESPONSE ASSIGNMENTS

This section of the Georgia Assessments for the Certification of Educators® (GACE™) Preparation Guide is designed to assist you in responding to the constructed-response assignments on the test. Included in this section are:

- ▶ Constructed-response assignment directions
- ▶ Sample constructed-response assignments
- ▶ Assignment response sheets
- ▶ An example of a strong response to each sample assignment
- ▶ Scoring criteria that will be used in evaluating your response to each assignment

For each sample assignment, you may want to take the following steps to prepare for the test:

- Review the constructed-response assignment directions.
- Print the assignment and the assignment response sheet.
- Use scrap paper to make notes, write an outline, or otherwise prepare your response.
- Use the assignment response sheet to record your response. The assignment response sheet reflects the amount of space available on an actual test.
- After you complete the assignment, review the sample strong response, your response, and the scoring criteria.

CONSTRUCTED-RESPONSE ASSIGNMENT DIRECTIONS

A sample of the directions for the constructed-response assignments is shown in the box below.

CONSTRUCTED-RESPONSE ASSIGNMENT DIRECTIONS

For each constructed-response assignment in this section, you are to prepare a written response of up to one page and record it in the area provided on the appropriate Assignment Response Sheet in your answer document.

Read each assignment carefully before you begin to write. Think about how you will organize what you plan to write. You may use any blank space provided in this test booklet following each assignment to make notes, write an outline, or otherwise prepare your response. *However, each of your final responses must be written on the appropriate Assignment Response Sheet in your answer document.*

Your responses will be evaluated based on the following criteria:

- **Purpose:** The extent to which the response fulfills the purpose of the assignment in relation to relevant GACE framework objectives
- **Application of Content Knowledge and Skills:** The extent to which the response accurately and effectively applies content knowledge and skills in relation to relevant GACE framework objectives
- **Supporting Evidence:** The extent to which the response includes appropriate, specific supporting evidence of content knowledge and skills in relation to relevant GACE framework objectives

Evaluation of each response will be based on the criteria above, not on your writing ability. However, your response must be communicated clearly enough to permit a valid judgment of your knowledge and skills. Your responses should be written for an audience of educators in the field.

Your responses should be your original work, written in your own words, and not copied or paraphrased from some other work. Please write legibly. You may not use any reference materials during the test. Remember to review your work and make any changes you think will improve your responses.

The selected-response section of the answer document containing your name will be removed from your written responses to maintain your anonymity during the scoring process. Do not write your name on any other portion of the answer document, and do not separate any of the sheets from the document.

Please turn the page and begin the constructed-response assignment section of the test.

CONSTRUCTED-RESPONSE ASSIGNMENT ONE

■ Sample Constructed-Response Assignment One

Use the information below to complete the assignment that follows.

The owner of a farm maintains 50 head of cattle. The cattle are turned onto pasture when the vegetation begins to grow. Several of the pastures on which the animals graze are composed predominately of legumes, while others are predominately grass.

- Describe one problem that may be associated with nutrition in cattle that are turned onto lush-growing pasture; and
- describe one possible solution to this problem.

Strong Response to Sample Constructed-Response Assignment One

A primary concern in cattle-raising is managing the nutritional needs of the animals. Several problems can occur because of the unique digestive systems and nutritional requirements of cattle. For example, bloat sometimes afflicts cattle that are grazed on lush-growing legume pasture. Bloat is a buildup of gasses in the rumen, one part of the cow's stomach, and can lead to death if not properly treated. Bloat is caused by rapid fermentation in the rumen and is most commonly associated with rapid consumption of large quantities of green legumes. A second nutritional problem of cattle is called grass staggers, or grass tetany. Grass tetany is characterized by trembling and sometimes convulsions and death. This condition most often occurs when cattle are turned into grass pastures and is caused by a deficiency of magnesium in the forage. Grass tetany is most common where soils have low levels of this nutrient.

An animal that is suffering from bloat can be treated by various means, but the best solution to this problem is to prevent the condition by careful management of feeding and grazing practices. The best way to prevent bloat is to keep animals from overeating on lush legume pastures. This can be accomplished by introducing the animals gradually to such pastures, limiting the time they spend in the pasture, and feeding grain or dry roughage before turning them into the pasture. Where grass tetany is a problem, magnesium can be added to the feed, especially to that of lactating animals. Rotating animals between legume and grass pastures may also help prevent both bloat and grass tetany.

CONSTRUCTED-RESPONSE ASSIGNMENT TWO

■ Sample Constructed-Response Assignment Two

Use the information below to complete the assignment that follows.

The owner of several large greenhouses grows cut flowers that are sold in local markets. In past seasons, there occasionally have been problems with viral diseases (e.g., yellows, mosaic) in these greenhouses.

- Describe one method that would be appropriate for preventing or controlling viral disease in these greenhouses; and
- describe one advantage and one disadvantage of this method of prevention or control.

Section 5: Test II Sample Constructed-Response Assignments

■ Strong Response to Sample Constructed-Response Assignment Two

Among all the diseases and pests that affect plants grown in greenhouses, viral diseases are especially challenging because they tend to be difficult to control chemically. There are basically three strategies for controlling viral diseases in greenhouses. The first is to grow disease-resistant varieties, the second is to use a pest management strategy to prevent transmission of diseases by insect vectors, and the third is to control viral pathogens by sanitary practices. Effective sanitation depends on eliminating viruses from the greenhouse environment and on preventing the spread of disease. To accomplish this, growers must maintain a high degree of cleanliness, disinfect tools and benches, use only sterilized soil and potting mix, and ensure that all plant materials that are brought into the greenhouse are free of viral diseases. In addition, the grower must be knowledgeable of the symptoms of viral diseases and constantly vigilant in order to quickly recognize and remove infected plants before the disease can spread.

Sanitation is an effective component of any strategy to control viral diseases in the greenhouse. Growing only disease-resistant plants is not feasible, as varieties that are resistant to all viral diseases may not exist or may be less desirable in other ways. Control of insect vectors is important to prevent new infestations, but is not sufficient if sanitary practices are not also observed. Maintaining sanitation in a greenhouse is expensive, tedious, and may require shutting down production periodically, but is absolutely necessary for control of viral diseases.

CRITERIA FOR SCORING YOUR RESPONSE

Each response will be evaluated based on the following criteria.

PURPOSE	The extent to which the response fulfills the purpose of the assignment in relation to relevant GACE framework objectives
APPLICATION OF CONTENT KNOWLEDGE AND SKILLS	The extent to which the response accurately and effectively applies content knowledge and skills in relation to relevant GACE framework objectives
SUPPORTING EVIDENCE	The extent to which the response includes appropriate, specific supporting evidence of content knowledge and skills in relation to relevant GACE framework objectives

Each response is rated on a three-point scale. The three score points of the score scale correspond to varying degrees of performance that are related to the above criteria.

Score	Description
3	<p>The "3" response reflects thorough understanding of relevant content knowledge and skills as defined in relevant GACE framework objectives.</p> <ul style="list-style-type: none"> • The response fully achieves the purpose of the assignment. • The response demonstrates an accurate and effective application of relevant content knowledge and skills. • The response provides appropriate, specific supporting evidence of relevant content knowledge and skills.
2	<p>The "2" response reflects general understanding of relevant content knowledge and skills as defined in relevant GACE framework objectives.</p> <ul style="list-style-type: none"> • The response largely achieves the purpose of the assignment. • The response demonstrates a generally accurate, generally effective application of relevant content knowledge and skills. • The response provides some appropriate and general supporting evidence of relevant content knowledge and skills.
1	<p>The "1" response reflects limited or no understanding of relevant content knowledge and skills as defined in relevant GACE framework objectives.</p> <ul style="list-style-type: none"> • The response partially achieves or fails to achieve the purpose of the assignment. • The response demonstrates limited, inaccurate, and/or ineffective application of relevant content knowledge and skills. • The response provides limited or no appropriate, specific supporting evidence of relevant content knowledge and skills.

Please note: A response that is unrelated to the assigned topic, illegible, not primarily in the target language, or lacking a sufficient amount of original work to score will be considered **unscorable**. If there is no response to the assignment, then the response will be considered **blank**.