



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

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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

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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

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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