



SECTION 2

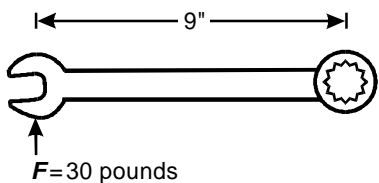
TEST I SAMPLE QUESTIONS

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.

QUESTIONS

1. Since the 1980s, large numbers of manufacturing jobs have moved from North America to other continents. Recently, a similar trend has developed in the service sector. The trend in the service sector has resulted primarily from changes in:
 - A. communications technology.
 - B. transportation technology.
 - C. data processing technology.
 - D. database management technology.

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



A person is using a wrench that has an effective length of 9 inches to turn a bolt. What is the torque in foot-pounds on the head of the bolt when a force of 30 pounds is applied to the end of the wrench?

- A. 11.3 foot-pounds
- B. 22.5 foot-pounds
- C. 45 foot-pounds
- D. 270 foot-pounds

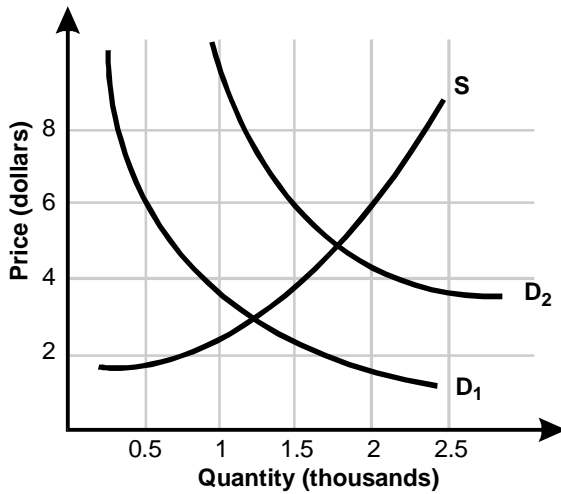
3. Use the information below to answer the question that follows.

A company is troubleshooting a home security system that it produces. A detection subsystem monitors home entrance points, and when it detects an intrusion it sends a signal to a processing subsystem. The processing subsystem sounds an alarm in the home, and after a brief delay that allows the homeowner to cancel the alarm, it sends a signal to a security company. The problem is that the home alarm has been failing to sound, although after the delay, the security company is notified.

Which of the following tests of the system would most efficiently determine which subsystem is at fault?

- A. Use a signal generator to provide a known input to the processor.
- B. Provide an intrusion signal to the processor and then cancel the alarm.
- C. Replace the speakers with speakers that are known to work.
- D. Monitor the output of the processor when it receives an input.

4. Use the supply and demand curves below to answer the question that follows.



What will be the new equilibrium price for a product if the demand curve for the product shifts from D_1 to D_2 ?

- A. \$1.25
- B. \$1.50
- C. \$3.00
- D. \$5.00
5. Reverse engineering is a strategy that is most likely to be effective in overcoming another company's:
- A. patent.
- B. trade secret.
- C. trademark.
- D. copyright.

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6. Which of the following is an important safety procedure when operating a lathe?
- A. When finished working, stop the lathe and clean the area around the cutting tool with compressed air.
 - B. Remove the chuck key from the chuck before starting the lathe.
 - C. While the lathe is operating, use only a gloved hand to remove shavings from the cutting tool.
 - D. Start the lathe turning at whatever its final operating speed will be.
7. One important advantage of oxyacetylene cutting torches over plasma cutting torches is that oxyacetylene cutting torches are better suited for cutting:
- A. thick pieces of metal.
 - B. nonferrous metals.
 - C. along curved templates.
 - D. at faster torch travel speeds.

8. **Use the information below to answer the question that follows.**

A research scientist uses an enzyme to open a strand of DNA. A small strand of DNA from another source is then attached to the first piece of DNA. The researcher then uses another enzyme to close the strand of DNA.

The process above describes which of the following biotechnology techniques?

- A. cloning
- B. gene mapping
- C. gene splicing
- D. gene therapy

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9. For quality assurance purposes, a construction company samples bricks arriving at their construction sites and assesses their acceptability in relation to specifications. In setting the sampling procedures, it is most important to ensure that the:
- A. sample sizes are as large as possible.
 - B. samples represent the larger population.
 - C. samples are tested and then returned to the job.
 - D. samples are retained in case tests must be repeated.
10. One advantage of flat-sawed lumber over quarter-sawed lumber is that flat-sawed lumber:
- A. is less dense and hard and is easier to work.
 - B. resists swelling and shrinking with changing weather conditions.
 - C. develops fewer checks and cracks as it dries.
 - D. shows the wood's grain to better advantage.
11. Which of the following processes is typically used to increase the density of concrete by removing air voids?
- A. rodding
 - B. curing
 - C. screeding
 - D. floating

ANNOTATED ANSWER KEY

For question	The correct response is	Reason	Test Objective
1	A	The service sector is the segment of industry that provides services to consumers and other businesses. Many service sector businesses, such as those that provide customer support and technical support, are able to provide their services from a distance due to improvements in communications technology.	0001
2	B	A wrench is able to increase an applied force because it acts as a lever. The force on the bolt in foot-pounds can be calculated by multiplying the length of the wrench in feet ($\frac{3}{4}$ foot) by the applied force in pounds (30 pounds), that is $\frac{3}{4}$ foot \times 30 pounds = 22.5 foot-pounds.	0002
3	D	In the security system described, the alarm is one of the system's outputs. The failure of the alarm to sound indicates that either it is not receiving a signal from the processor, or it is defective and unable to respond to the signal. Testing the output of the processor would help assess the first of these two possibilities.	0003
4	D	The graph is an example of a supply and demand curve. The equilibrium price is found by projecting the intersection of the supply and demand curves to the axis labeled "Price." To find the equilibrium price for the demand represented by line D_2 , first find the intersection of the line representing supply (S) and the line representing demand (D_2). Now draw a horizontal line from this point to the axis labeled "Price." The value at this point is halfway between \$4 and \$6. The equilibrium price is \$5.00.	0004
5	B	Reverse engineering is the process of examining a product to determine its specifications and operating principles with the intent of copying one or more of the product's features. Trade secrets are not protected in the same way as patents and trademarks, and in some situations involving trade secrets, reverse engineering is permissible and may be effective.	0005
6	B	Lathes operate at very high speeds. A chuck key that is left in the chuck when the lathe is started can fly off and cause a safety hazard. Before starting a lathe, a worker should ensure that the chuck key has been removed from the chuck.	0006
7	A	Plasma cutting torches require very large power supplies to cut workpieces thicker than one inch. For cutting these thick pieces, oxyacetylene torches are much faster and easier to use than plasma cutting torches.	0007

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For question	The correct response is	Reason	Test Objective
8	C	DNA splicing is a technique that allows a short section of DNA to be inserted into the long DNA molecule of another organism. To accomplish this, the long DNA molecule must first be cut open by an enzyme. The short section of DNA is then used to bridge the gap formed by the cut. A second enzyme is used to chemically join the short section to the long DNA molecule.	0008
9	B	Assessing the acceptability of materials in relation to specifications sometimes involves testing each individual piece in relation to those specifications. Depending on a number of factors, the quality assurance team may test every part, or they may test a sample of the parts and make decisions about all of the parts based on an analysis of this sample. Decisions based on a sample are accurate only if that sample is representative of all of the parts.	0009
10	D	Flat-sawed or plain-sawed lumber is cut parallel to the grain of the wood. This cutting pattern reveals the grain of the wood on the face of each board.	0010
11	A	Air voids are pockets of air trapped in concrete. These pockets reduce the density of the concrete. Rodding is the process of inserting a metal rod into the wet concrete and repeatedly moving the rod up and down to bring the trapped air to the surface. This reduces the number of air pockets and increases the density of the concrete.	0011