52. **Directions:** An introduction for a short summary of the passage appears below. Complete the summary by selecting the THREE answer choices that mention the most important points in the passage. Some sentences do not belong in the summary because they express ideas that are not included in the passage or are minor points from the passage. ***This question is worth 2 points.***

There is considerable evidence supporting a theory of multiple migrations from Asia to the Americas.

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Answer Choices

A Ancient stories of migrations from a far-away place are common in the cultures of many Native American nations.

B The people who inhabited Monte Verde in southern Chile were a highly evolved culture as evidenced by their tools and homes.

C Genetic similarities between Native American peoples and Asians include the arrangement of teeth, viruses, and blood types.

D Hunters followed the herds of big game from Beringia south along the Rocky Mountains into what is now called the Great Plains.

E Excavations at archaeological sites provide artifacts that can be used to date the various migrations that occurred by land and sea.

F The climate began to get warmer and warmer, melting the glacial ice about 13,000 B.C.E.

Reading 5 "Physical and Chemical Properties and Changes"

P1 → Sugar, water, and aluminum are different substances. Each substance has specific properties that do not depend on the *quantity* of the substance. Properties that can be used to identify or characterize a substance—and distinguish that substance from other substances—are called **characteristic properties**. They are subdivided into two categories: physical properties and chemical properties.

P2 The characteristic physical properties of a substance are those that identify the substance without causing a change in the composition of the substance. They do not depend on the quantity of the substance. A Color, odor, density, melting point, boiling point, hardness, metallic luster or shininess, ductility, malleability, and viscosity are all characteristic physical properties. For exam-

ple, aluminum is a metal that is both ductile and malleable. [B] Another example of a physical property is water. Whether a small pan of water is raised to its boiling point or a very large kettle of water is raised to its boiling point, the temperature at which the water boils is the same value, 100 degrees C or 212 degrees F. [C] Similarly, the freezing point of water is 0 degrees C or 32 degrees F. These values are independent of quantity. [D]

[P3] Characteristic properties that relate to changes in the composition of a substance or to how it reacts with other substances are called chemical properties. The following questions pertain to the chemical properties of a substance.

1. Does it burn in air?
2. Does it decompose (break up into smaller substances) when heated?
3. What happens when it is placed in an acid?
4. What other chemicals will it react with, and what substances are obtained from the reaction?

[P4] Characteristic physical and chemical properties—also called **intensive properties**—are used to identify a substance. In addition to the characteristic physical properties already mentioned, some intensive physical properties include the tendency to dissolve in water, electrical conductivity, and density, which is the ratio of mass to volume.

[P5] Additional intensive chemical properties include the tendency of a substance to react with another substance, to tarnish, to corrode, to explode, or to act as a poison or carcinogen (cancer-causing agent).

[P6] **Extensive properties** of substances are those that depend on the quantity of the sample, including measurements of mass, volume, and length. Whereas intensive properties help identify or characterize a particular kind of matter, extensive properties relate to the amount present.

[P7] If a lump of candle wax is cut or broken into smaller pieces, or if it is melted (a change of state), the sample remaining is still candle wax. When cooled, the molten wax returns to a solid. In these examples, only a physical change has taken place; that is, the composition of the substance was not affected.

[P8] ➔ When a candle is burned, there are both physical and chemical changes. After the candle is lighted, the solid wax near the burning wick melts. This is a physical change; the composition of the wax does not change as it goes from solid to liquid. Some of the wax is drawn into the burning wick where a chemical change occurs. Here, wax in the candle flame reacts chemically with oxygen in the air to form carbon dioxide gas and water vapor. In any chemical change, one or more substances are used up while one or more new substances are formed. The new substances produced have their own unique physical and chemical properties.

P9 The apparent disappearance of something, like the candle wax, however, is not necessarily a sign that we are observing a chemical change. For example, when water evaporates from a glass and disappears, it has changed from a liquid to a gas (called water vapor), but in both forms it is water. This is a phase change (liquid to gas), which is a physical change. When attempting to determine whether a change is physical or chemical, one should ask the critical question: Has the fundamental composition of the substance changed? In a chemical change (a reaction), it has, but in a physical change, it has not.

Glossary
ductility: can be drawn into wire
malleability: can be shaped
viscosity: thick, resistant to flow

53. According to paragraph 1, what do physical properties and chemical properties have in common?

Ⓐ They are both used to create most of the substances.
Ⓑ They include basic substances like sugar and water.
Ⓒ They are classified as characteristic properties of substances.
Ⓓ They change in proportion to the amount of the substance.

Paragraph 1 is marked with an arrow [➔].

54. The word pertain in the passage is closest in meaning to

Ⓐ compare
Ⓑ relate
Ⓒ explain
Ⓓ change

55. The word which in the passage refers to

Ⓐ properties
Ⓑ tendency
Ⓒ density
Ⓓ ratio

56. According to the passage, a "carcinogen" will

Ⓐ explode under pressure
Ⓑ conduct electricity
Ⓒ cause cancer
Ⓓ tarnish in air

57. Which of the sentences below best expresses the information in the highlighted statement in the passage? The other choices change the meaning or leave out important information.

Ⓐ Properties that are classified as intensive identify the type of substance and the extent of it present in the surrounding matter.
Ⓑ The quantity of a substance influences its extensive properties, but the characteristics of the substance define the intensive properties.
Ⓒ Where the intensive and extensive properties are found in substances is important in identifying their characteristics.
Ⓓ Both intensive and extensive properties tend to have quantitative rather than qualitative characteristics present.

58. In paragraph 8, the author contrasts the concepts of physical and chemical changes by

Ⓐ listing several types for each concept
Ⓑ providing clear definitions for them
Ⓒ identifying the common characteristics
Ⓓ using a wax candle as an example

Paragraph 8 is marked with an arrow [➔].

59. The word remaining in the passage is closest in meaning to

Ⓐ hidden
Ⓑ cut
Ⓒ changed
Ⓓ left

60. What can be inferred about phase changes?

Ⓐ They are always chemical changes.
Ⓑ They are sometimes physical changes.
Ⓒ They are dependent on extensive properties.
Ⓓ They usually produce new substances.

61. The word critical in the passage is closest in meaning to

Ⓐ last
Ⓑ important
Ⓒ difficult
Ⓓ simple

62. According to the passage, the classification of characteristic properties as "physical" or "chemical" is determined by

Ⓐ whether there has been a change in the structure of the substance
Ⓑ what happens when the quantity of the substance is increased
Ⓒ their classification as either extensive or intensive samples
Ⓓ the disappearance of a substance from one form to another

63. All of the following are mentioned as characteristic physical properties EXCEPT

Ⓐ dissolving in water
Ⓑ carrying an electrical charge
Ⓒ resisting continuous flow
Ⓓ decomposing when heated

64. Look at the four squares [■] that show where the following sentence could be inserted in the passage.

It can be made into wire or thin, flexible sheets.

Where could the sentence best be added?

Click on a square [■] to insert the sentence in the passage.

65. **Directions:** Complete the table by matching the phrases on the left with the headings on the right. Select the appropriate answer choices and drag them to the characteristic properties to which they refer. TWO of the answer choices will NOT be used. ***This question is worth 4 points.***

To delete an answer choice, click on it. To see the passage, click on **View Text**.

Properties	**Physical Properties**
Ⓐ Color of the substance	●
Ⓑ Reaction in an acid	●
Ⓒ Decomposition in heat	●
Ⓓ Temperature at which it boils	**Chemical Properties**
Ⓔ The tendency to shine	●
Ⓕ The inclination to tarnish	●
Ⓖ The shape of the substance	●
Ⓗ Toxic if swallowed or inhaled	●
Ⓘ The relative amount in nature	

LISTENING SECTION

Model Test 2, Listening Section, CD 4, Track 3.

The Listening section tests your ability to understand spoken English that is typical of interactions and academic speech on college campuses. During the test, you will listen to conversations and lectures and answer questions about them.

This is the short format for the Listening section. On the short format, you will listen to two conversations and four lectures. After each listening passage, you will answer 5–6 questions about it.

You will hear each conversation or lecture one time. You may take notes while you listen, but notes are not graded. You may use your notes to answer the questions.

Choose the best answer for multiple-choice questions. Follow the directions on the page or on the screen for computer-assisted questions. Click on **Next** and then on **OK** to go on to the next question. You cannot return to previous questions.

The Listening section is divided into sets. Each set includes one conversation and two lectures. You have 10 minutes to answer all of the questions for each set. You will have 20 minutes to answer all of the questions on the short format. A clock on the screen will show you how much time you have to complete your answers for the section. The clock does NOT count the time you are listening to the conversations and lectures.