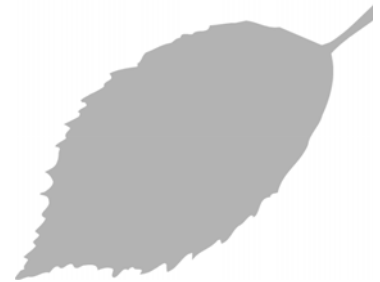


**Massachusetts
Tests for Educator Licensure® (MTEL®)**



**General Curriculum
(103/203)
PRACTICE TEST**

**BOOKLET 1
Multi-Subject Subtest
(103)**



Multiple-Choice Question Analyses are provided in a separate appendix document.
See the MTEL web site for more information.

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INTRODUCTION

This document is a printable version of the Massachusetts Tests for Educator Licensure® (MTEL®) General Curriculum (03) Online Practice Test.

The MTEL General Curriculum test consists of a multi-subject subtest and a mathematics subtest. To pass the General Curriculum test, you must pass both the multi-subject and mathematics subtests.

This practice test for the General Curriculum multi-subject subtest is a sample test consisting of 55 multiple-choice questions and 1 open-response item assignment.

To assist you in recording and evaluating your responses on the practice test, a Multiple-Choice Answer Sheet, an Answer Key Worksheet, an Evaluation Chart by test objective, and Analyses are included for the multiple-choice questions. A blank Response Sheet, Evaluation Information, and Sample Responses and Analyses, as well as a Scoring Rubric, are included for the open-response item. Lastly, there is a Practice Test Score Calculation Worksheet.

PURPOSE OF THE PRACTICE TEST

The practice test is designed to provide an additional resource to help you effectively prepare for the MTEL General Curriculum (03) test. The primary purpose of the practice test is to help you become familiar with the structure and content of the test. It is also intended to help you identify areas in which to focus your studies. Education faculty and administrators of teacher preparation programs may also find this practice test useful as they help students prepare for the official test.

TAKING THE PRACTICE TEST

In order to maximize the benefits of the practice test, it is recommended that you take this test under conditions similar to the conditions under which the official MTEL tests are administered. Try to take the practice test in a quiet atmosphere with few interruptions and limit yourself to the four-hour time period* allotted for the official test administration. You will find your results to be more useful if you refer to the answer key and/or multiple-choice question analyses only after you have completed the practice test.

INCORPORATING THE PRACTICE TEST IN YOUR STUDY PLAN

Although the primary means of preparing for the MTEL is your college education, adequate preparation prior to taking or retaking the MTEL test is strongly recommended. How much preparation and study you need depends on how comfortable and knowledgeable you are with the content of the test.

The first step in preparing to take the MTEL is to identify what information the test will address by reviewing the objectives for your field. A complete, up-to-date list of the Test Objectives is included in the Test Information Booklet for each test field. The test objectives are the core of the testing program and a helpful study tool. Before taking or retaking the official test, focus your study time on those objectives for which you wish to strengthen your knowledge.

* For the Communication and Literacy Skills and General Curriculum tests, candidates may take one or both subtests during the four-hour session.

General Curriculum (03) Practice Test: Multi-Subject

This practice test may be used as one indicator of potential strengths and weaknesses in your knowledge of the content on the official test. However, because of potential differences in format and difficulty between the practice test and an official MTEL General Curriculum (03) test, it is not possible to predict precisely how you might score on an official MTEL General Curriculum (03) test. Keep in mind that the subareas for which the test weighting is greatest will receive emphasis on this test. Refer to the Test Information Booklet for additional information about how to prepare for the test.

**GENERAL CURRICULUM (03)
PRACTICE TEST
MULTI-SUBJECT SUBTEST**

GENERAL TEST DIRECTIONS

This practice test consists of two subtests: multi-subject (booklet 1) and mathematics (booklet 2). Each multiple-choice question on the practice test has four answer choices. Read each question carefully and choose the ONE best answer. Record each answer on the answer sheet provided.

Sample Question:

1. What is the capital of Massachusetts?
 - A. Worcester
 - B. New Bedford
 - C. Boston
 - D. Springfield

The correct answer to this question is C. You would indicate that on the answer sheet.

The open-response item assignment on this practice test requires a written response. Directions for the open-response item assignment appear immediately before the assignment.

You may work on the multiple-choice questions and open-response item assignment in any order that you choose. You may wish to monitor how long it takes you to complete the practice test. When taking the actual MTEL General Curriculum (03) test, you will have one four-hour test session in which to complete the test.

MULTIPLE-CHOICE ANSWER SHEET**Multi-Subject Subtest**

Question Number	Your Response
1	
2	
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Question Number	Your Response
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MULTIPLE-CHOICE QUESTIONS

1. Which of the following sentences provides an example of agreement between a pronoun and its antecedent?
 - A. Several of the guests had mailed their gifts prior to the party.
 - B. One of the runners was showing their fatigue.
 - C. Each of the officials has worked to protect their own interests.
 - D. Neither of the children likes to share their toys.
2. Which of the following sentences contains an error in punctuation?
 - A. The athlete plays several sports during the school year: baseball, basketball, volleyball, and tennis.
 - B. The movie was fantastic but, I had to leave for a moment to take a telephone call.
 - C. I worked all night long to complete the project; my professor will be impressed with the product.
 - D. Don't you think that it's always a good idea to knock before entering any room?
3. During the fifteenth and early sixteenth centuries in Europe, which of the following was the most significant reason for the increased criticism of organized religion and demand for reform by common people?
 - A. the emergence of women as writers and artists
 - B. the development of realism in Renaissance painting
 - C. the beginning of exploration across the Atlantic Ocean
 - D. the widespread printing of the Bible in the vernacular

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

1. Only the teacher studied how to read the language.
 2. The teacher only studied how to read the language.
 3. The teacher studied only how to read the language.

The position of the word *only* changes the meaning of each of the sentences above. This is an example of a manipulation of which of the following elements of language?

- A. semantics
- B. syntax
- C. phonology
- D. lexicon

5. In a biographical approach to literary criticism, which of the following aspects of a novel receives the most attention?
 - A. connections to the author's personal history
 - B. assessments of its impact on other authors' work
 - C. references to contemporary cultural and political life
 - D. responses by readers to its major themes and ideas
6. The themes and story lines of many plays of the Elizabethan age in England most commonly reflect the influence of:
 - A. changing perceptions of the world as a result of exploration.
 - B. the model of classical Greek tragedy.
 - C. the religious upheaval in Europe during the previous decades.
 - D. societal changes due to technology.

7. Which of the following influential works of classical Greek literature best represents the descriptive and narrative literary style known as the epic?
- A. Pindar's *Olympian i*
 - B. Euripides' *Medea*
 - C. Sophocles' *Antigone*
 - D. Homer's *The Odyssey*
8. Which of the following descriptions best illustrates the dramatic form of the comedy?
- A. an allegorical folk play dealing with an individual's actions in life
 - B. a brief, loosely organized set of songs, dances, and satirical skits
 - C. an extravagant production in which physical action and plot dominate
 - D. a lighthearted work with a positive resolution of the primary conflict
9. When a writer uses the literary technique of foreshadowing, which of the following will appear in the text?
- A. an alteration of objective facts or reality
 - B. a break in the story to explain something
 - C. a suggestion of events prior to their occurrence
 - D. an abstract concept represented as a person

10. **Read the excerpt below from "The Elements of San Joaquin" (1977), a poem by Gary Soto; then answer the question that follows.**

At dusk the first stars appear.
Not one eager finger points toward them.
A little later the stars spread with the night
And an orange moon rises
To lead them, like a shepherd, toward dawn.

Which of the following statements best describes the use of a poetic device in this excerpt?

- A. Personification suggests a resemblance between a star and a human hand.
- B. A metaphor equates the luminous beauty of stars with that of precious gems.
- C. Alliteration emphasizes the hypnotic effect of stargazing for long periods.
- D. A simile implies a resemblance between stars in the sky and sheep in a field.

11. A fifth-grade teacher wants to use literature to help foster understanding, sensitivity, and tolerance of cultural differences. Which of the following sets of books would best help the teacher reach this goal?
- A. *The High King*, *The View From Saturday*, and *Maniac Magee*
 - B. *Number the Stars*, *Call It Courage*, and *Bud, Not Buddy*
 - C. *The Giver*, *Dear Mr. Henshaw*, and *A Wrinkle in Time*
 - D. *The Witch of Blackbird Pond*, *The Westing Game*, and *Shiloh*

Read the passage below from the story of Pecos Bill (1966); then answer the two questions that follow.

What Bill planned to do was leap from his horse and grab the cyclone by the neck. But as he came near and saw how high the top of the whirling tower was, he knew he would have to do something better than that. Just as he . . . came close enough to the cyclone to feel its hot breath, a knife of lightning streaked down into the ground. It struck there, quivering, just long enough for Bill to reach out and grab it. As the lightning bolt whipped back up into the sky, Bill held on. When he was as high as the top of the cyclone, he jumped and landed astraddle its black, spinning shoulders.

By then, everyone in Texas, New Mexico, Arizona, and Oklahoma was watching. They saw Bill grab hold of that cyclone's shoulders and haul them back. They saw him wrap his legs around the cyclone's belly and squeeze so hard the cyclone started to pant. Then Bill got out his lasso and slung it around the cyclone's neck. He pulled it tighter and tighter until the cyclone started to choke, spitting out rocks and dust. All the rain that was mixed up in it started to fall.

- | | |
|---|---|
| <p>12. The story of Pecos Bill, like those of John Henry and Paul Bunyan, represents which of the following literary genres?</p> <ul style="list-style-type: none">A. mythsB. fairy talesC. epicsD. tall tales | <p>13. These paragraphs include examples of which of the following literary devices?</p> <ul style="list-style-type: none">A. simileB. alliterationC. hyperboleD. metaphor |
|---|---|

14. Read the poem below, "To the Right Honorable William, Earl of Dartmouth" (1773) by Phillis Wheatley; then answer the question that follows.

Should you, my lord, while you pursue my song,
Wonder from whence my love of *Freedom* sprung,
Whence flow these wishes for the common good,
By feeling hearts alone best understood,
I, young in life, by seeming cruel fate
Was snatch'd from *Afric's* fancy'd happy seat:
What pangs excruciating must molest,
What sorrows labour in my parent's breast?
Steel'd was the soul and by no misery mov'd
That from a father seiz'd his babe belov'd.
Such, such my case. And can I then but pray
Others may never feel tyrannic sway?

By constructing her poem as an exchange with a specific person, the poet represents freedom and slavery as:

- A. abstract philosophical concepts.
 - B. deeply personal experiences.
 - C. divinely determined states.
 - D. contentious political issues.
15. Read the excerpt below from "The Raven" (1845), a poem by Edgar Allan Poe; then answer the question that follows.

Once upon a midnight dreary, while I pondered, weak and weary,
Over many a quaint and curious volume of forgotten lore—
While I nodded, nearly napping, suddenly there came a tapping,
As of some one gently rapping, rapping at my chamber door.
" 'Tis some visitor," I muttered, "tapping at my chamber door—
Only this and nothing more."

In this passage, the repetition of similar word sounds creates a mood of:

- A. carefree relaxation.
- B. mounting tension.
- C. cheery optimism.
- D. growing depression.

16. **Read the paragraph below; then answer the question that follows.**

Janik Laskow's new play, *The New Dawn*, tells the story of a young woman who wakes up one morning to find herself the only person on the earth. What I found remarkable was the acting of Leda Hanson. Incredible! Her ability to use expressions and limited speaking to deliver such a powerful performance was absolutely unbelievable. Laskow's writing is wonderfully realistic and Hanson delivered the lines flawlessly. Everyone should see this play. You will not be disappointed by the performance. Get your tickets at the door.

Given the style and content of the above paragraph, which of the following is most likely the intended audience of the author?

- A. readers of a national news magazine
- B. readers of a financial newspaper
- C. readers of a sports magazine
- D. readers of a local weekly newspaper

17. In which of the following ways did the late twentieth-century women's movement in the United States differ most from the women's movement of the nineteenth century?

- A. by championing the belief that women were capable of exercising the privileges and responsibilities of citizenship
- B. by seeking to expand the range of educational opportunities open to women
- C. by challenging the traditional assumption that women must choose between motherhood and a professional career
- D. by seeking to enlist women's organizations in the fight for expanded rights

18. Which of the following best describes the primary reason that major political figures of the early national period decided to replace the Articles of Confederation with the U.S. Constitution?

- A. to resolve growing tensions between the northern and southern states
- B. to ensure that state governments were based on the principle of popular sovereignty
- C. to broaden the powers of the national government
- D. to remove political obstacles to the creation of territorial governments in the West

19. From 1848 to 1850, the nonindigenous population of San Francisco rose from fewer than 1,000 to more than 25,000 people. Which of the following was most directly responsible for this population increase?
- A. the gold rush
 - B. railroad construction
 - C. the Mexican War
 - D. Chinese immigration
20. Following World War II, the United States faced a new Red Scare based on claims that:
- A. a fuel shortage was inevitable.
 - B. a large number of government workers were communists.
 - C. an economic recession was imminent.
 - D. a growing base of federal power would limit the scope of civil rights.
21. Which of the following beliefs was dominant in U.S. politics during both the Progressive Era and the New Deal?
- A. The welfare of society should be supported through free-market capitalism.
 - B. The problems of society should be solved through government initiatives.
 - C. The distribution of wealth should be promoted through decreased government.
 - D. The unemployed should be protected through the restriction of immigration.
22. Which of the following is a fundamental purpose of democratic government?
- A. providing for the common good
 - B. establishing a moral code
 - C. controlling the economy
 - D. establishing a bureaucracy

23. A piece of legislation is passed by both the U.S. Senate and the House of Representatives, but the president vetoes it. This legislation can still become a law if:
- A. there is an overriding vote by five of the nine members of the Supreme Court.
 - B. the Speaker of the House decides to approve it.
 - C. the majority of the president's cabinet approve it.
 - D. there is an overriding vote by at least two-thirds of both houses of Congress.
24. Which of the following forms of local self-government is the best example of direct democracy?
- A. council-manager form of city government
 - B. commission form of government
 - C. mayor-council form of city government
 - D. town meeting form of government
25. Which of the following best describes the main function of entrepreneurs in a capitalist economy?
- A. to organize land, labor, and capital for productive purposes
 - B. to maintain stability within different industries
 - C. to coordinate relations among different sectors of the economy
 - D. to moderate fluctuations in the business cycle
26. In the U.S. judicial system, the primary role of a grand jury is to:
- A. give police officers permission to make an arrest, seizure, or search in response to a suspected crime.
 - B. sentence a defendant if and when that defendant is found guilty of a federal crime.
 - C. decide whether there is probable cause for believing that a defendant has committed a federal crime.
 - D. attempt to get a defendant to plea-bargain to save the time and cost of a trial.

27. Which of the following industries was the first to be transformed by the Industrial Revolution in Great Britain?

- A. textile
- B. steel
- C. transportation
- D. munitions

28. Use the list below to answer the question that follows.

- the development of analytical, secular history
- the creation of a naturalistic art style
- the introduction of philosophical dialogue
- the development of systematic logic

The list above best describes the intellectual contributions of which of the following civilizations?

- A. Egypt
- B. Greece
- C. Rome
- D. India

29. Which of the following was a significant difference between the early civilizations of Mesoamerica and the early civilization of the ancient Near East and China?

- A. Mesoamerican peoples relied on corn, beans, and squash for protein.
- B. Mesoamerican peoples had large numbers of domesticated animals.
- C. Mesoamerican peoples made extensive use of metal tools.
- D. Mesoamerican peoples developed long-distance trade networks.

30. **Read the passage below; then answer the question that follows.**

During the mid-1930s, farmers in northern Illinois and eastern Iowa became the first U.S. food producers to adopt hybrid corn. Within a decade, the new seeds were being planted by corn growers throughout much of the Midwest. By mid-century, use of the hybrid varieties had spread to nearly all corn-growing areas of the United States and southern Canada.

The passage above best illustrates the meaning of which of the following geographic concepts?

- A. specialization
- B. diffusion
- C. interdependence
- D. acculturation

31. Which of the following accurately describes an important geographic feature of a major region of Massachusetts?

- A. Central Massachusetts receives more rainfall each year than any other region of the state.
- B. The rolling plains of the Berkshires are fed by numerous streams.
- C. The wooded hills of southeastern Massachusetts tower over the surrounding landscape.
- D. The Connecticut River valley has some of the most fertile land in the state.

32. A majority of the earth's human inhabitants today live in which of the following types of climates?

- A. cold high-latitude climates
- B. humid low-latitude climates
- C. warm mid-latitude climates
- D. dry low-latitude climates

33. Which of the following describes a major function of the prime meridian?
- A. It serves as a division line between tropic and temperate zones of climate.
 - B. It provides a starting point for the measurement of longitude.
 - C. It serves as a division line between the Eastern and Western Hemispheres.
 - D. It provides a starting point for the measurement of great circles.
34. In 1922 Massachusetts began a project to extend the water system that provided potable water to the Greater Boston and Metropolitan West areas of the state. This project led to the creation of which of the following major physical features in Massachusetts?
- A. Lake Quinsigamond
 - B. Quabbin Reservoir
 - C. Knightville Reservoir
 - D. Lake Cochituate
35. Cells with high energy demands, such as muscle cells, often contain several mitochondria. This is because mitochondria are organelles where:
- A. the chemical energy contained in carbohydrates is transformed into a form usable within the cell.
 - B. electrons are stripped from fat molecules and transferred for use in other parts of the cell.
 - C. the potential energy in proteins is transformed into compounds needed for cellular processes.
 - D. atomic nuclei are split into neutrons and protons and the released energy is used in cellular processes.

36. Which of the following represents the simplified chemical equation for photosynthesis?

- A. solar energy + $\text{H}_2\text{O} \longrightarrow \text{CO}_2 + \text{O}_2 + \text{sugar}$
- B. minerals + $\text{CO}_2 + \text{solar energy} \longrightarrow \text{sugar} + \text{O}_2$
- C. $\text{H}_2\text{O} + \text{sugar} + \text{solar energy} \longrightarrow \text{CO}_2 + \text{O}_2$
- D. $\text{H}_2\text{O} + \text{CO}_2 + \text{solar energy} \longrightarrow \text{sugar} + \text{O}_2$

37. A significant difference between plant and animal cells is that plant cells have:

- A. cellular membranes.
- B. cell walls.
- C. cytoplasm.
- D. ribosomes.

38. Maple trees in midlatitude deciduous forests grow leaves in mid-May, shading the forest floor. Herbaceous flowering plants on the forest floor below them begin to grow earlier and bloom in April. This example best illustrates how different species:

- A. occupy separate niches within an ecosystem to avoid competition.
- B. compete with each other for the same resources.
- C. mutually benefit from their relationship.
- D. rely on different resources within the same ecosystem.

39. A vegetable farmer has a problem with a particular type of insect pest. Every month during the growing season, the farmer sprays a pesticide on the vegetables to control the pest. After five years of spraying, the farmer notices that the pesticide has become less effective at controlling the insect pest. This reduction in the pesticide's effectiveness is most likely due to:
- A. the evolution of a mechanism in the insects to break down and excrete the pesticide.
 - B. an increase in the number of eggs laid by each female insect in response to the pesticide exposure.
 - C. the increasing proportion of pesticide-resistant insects that have survived in the population.
 - D. a change in the feeding habits of the insect so as to avoid the highest concentrations of pesticide.
40. Most of the chemical bonding that occurs between elements during the formation of molecular compounds results from which of the following?
- A. the exchange or combination of protons within the atomic nuclei of different atoms
 - B. the magnetic attraction between the opposite poles of different types of atoms
 - C. the transfer or sharing of the outermost electrons of two or more atoms
 - D. the electrical attraction between protons and neutrons in two or more different types of atoms
41. Which of the following explains why a teaspoon of table salt (sodium chloride) dissolved in a cup of hot water does not increase the volume of the water by an amount equal to the volume of the added salt?
- A. The crystal structure of the salt breaks down as it dissolves, decreasing the distance between individual salt particles.
 - B. The ions of sodium and chloride fit between the water molecules, increasing the density of the salt-water solution.
 - C. The addition of the salt decreases the surface tension of the water molecules, increasing the evaporation rate.
 - D. The chloride ions released from salt as it dissolves combine with water molecules, reducing the mass of the dissolved crystals.
42. Isaac Newton's law of inertia states that an object will continue in its state of rest or motion unless acted upon by an outside force. An object's inertia is directly related to its:
- A. weight.
 - B. momentum.
 - C. mass.
 - D. acceleration.

43. The temperature of water in a glass is most directly related to which of the following?
- A. the energy level of the electrons associated with the water molecules
 - B. the strength of attractive forces between the water molecules
 - C. the movement of the water molecules
 - D. the heat generated by the evaporation of water molecules
44. Which of the following is the best indication that the water cycle is balanced, with total evaporation and transpiration equaling total precipitation?
- A. The total amount of fresh water on or under the land is equal to the total amount of salt water in the oceans.
 - B. The proportion of total annual precipitation that falls as rain versus the proportion that falls as snow does not change from year to year.
 - C. The total amount of water vapor in the earth's atmosphere remains relatively constant.
 - D. The proportion of water vapor in the atmosphere produced by evaporation is similar to that produced by transpiration.
45. Which of the following is the most significant factor responsible for the physical weathering of rock outcrops in the northeastern United States?
- A. the shaking of rock caused by tectonic movements
 - B. the dissolving of rock by precipitation
 - C. the oxidation of minerals that are found in rock
 - D. the freezing of water in rock fractures
46. The moon is located between the sun and the earth during new moons and solar eclipses. While new moons occur monthly, solar eclipses are rare. This is because a solar eclipse only occurs:
- A. when the sun, the moon, and the earth are aligned in the same plane.
 - B. during an equinox, when the earth's Northern and Southern Hemispheres receive equal amounts of sunlight.
 - C. when the moon's elliptical orbit brings it closest to the earth.
 - D. during the summer solstice, when the earth's Northern Hemisphere is tilted toward the sun.

47. Which line of the table below accurately matches a planet with its characteristics?

Line	Planet	Characteristics
1	Venus	The planet closest to the sun, this planet is almost the same size as the earth but lacks an atmosphere and rotates very slowly on its axis.
2	Uranus	The fifth planet from the sun, this is the second-largest planet and has a thick atmosphere that reflects sunlight and causes the planet to shine brightly in the night sky.
3	Jupiter	The planet that is farthest from the sun, this planet is the largest in the solar system and is composed primarily of water vapor and methane gas.
4	Mars	The fourth planet from the sun, this planet has a mass only one-tenth that of the earth and has a thin atmosphere composed mostly of carbon dioxide.

- A. Line 1
- B. Line 2
- C. Line 3
- D. Line 4
48. Annie Jump Cannon was an early twentieth-century astronomer who catalogued the spectra of over 225,000 stars. Her work was invaluable in helping others formulate and test astronomical theories. The work of Annie Jump Cannon demonstrates which of the following aspects of scientific research?
- A. Scientific inquiry relies on careful observations of natural phenomena.
- B. Scientific progress proceeds more rapidly at some times than at others.
- C. Scientific research must be validated by peer review.
- D. Scientific breakthroughs often occur by accident.

49. The development of techniques for creating integrated circuits by etching large numbers of transistors on a small piece of silicon most directly influenced the production of:
- A. inexpensive and extremely powerful lasers.
 - B. superconducting materials for efficient transmission of electricity.
 - C. smaller, faster, and less expensive computers.
 - D. efficient and affordable photovoltaic cells.
50. During the nineteenth century, scientists recognized that cholera and typhoid were spread through contaminated water supplies. By the early part of the twentieth century, major urban areas in Europe and the United States were almost free of these diseases primarily as a result of the development of:
- A. diagnostic techniques for rapidly identifying infected individuals.
 - B. public-health initiatives focused on sanitizing drinking water and managing sewage.
 - C. broad-spectrum antibiotics capable of curing infected individuals.
 - D. groundwater resources that replaced rivers as the major source of drinking water.
51. During the mid-eighteenth century, the naturalist Carolus Linnaeus developed a key that allowed others to distinguish types of organisms that he had previously identified. His early work ordering and identifying organisms is widely seen as providing the foundation for:
- A. the currently accepted approach to scientific research.
 - B. an explanation of evolutionary processes.
 - C. the modern system for classifying species.
 - D. an understanding of the biology of inheritance.
52. The work of Nicolaus Copernicus in astronomy led to a fundamental shift in thinking about the place of humans in the universe. The philosophical importance of Copernicus's work was based on his discovery that:
- A. the planets revolved around the sun, challenging the widely accepted idea that the earth was at the center of the cosmos.
 - B. the solar system was extremely old, challenging religious beliefs of his day concerning the age of the earth.
 - C. the orbit of the planets was elliptical, countering the idea that the planetary orbits were perfectly circular.
 - D. the stars were similar to the sun, challenging the belief in the uniqueness of the solar system.

53. When engineers design a part for a machine, the design is passed on to the factory where the part will be produced. Depending on what the part will be used for, the engineers specify the extent to which the finished factory part must match the exact dimensions called for in the design. Design criteria that require the finished part to strictly match design specifications would most likely be necessary when the part must:
- A. be mass-produced cheaply and in large quantities.
 - B. last for a long period of time before needing to be repaired or replaced.
 - C. be able to withstand high levels of stress during frequent use.
 - D. interact with other precision parts in a final product.
54. For safety reasons, in which of the following investigations would it be most important to wear protective gloves?
- A. planting seeds in soil to determine the effect of soil moisture on the rate of germination
 - B. dissecting owl pellets to determine the feeding habits of owls
 - C. measuring the temperature of a solution to determine the effect of salinity on the freezing point of water
 - D. analyzing the density and hardness of common rock samples collected on a field trip
55. Student teams in a science class are determining the amount of salt that can be dissolved in water at 10°C, 25°C, and 40°C. The teacher has asked the students to use three different beakers for making the measurements and then repeat the series of experiments a second time. The primary reason for having the students do the series of experiments twice is to:
- A. improve the reliability of the results of the investigation.
 - B. create a reference set of data that serves as a control.
 - C. remove the potential for human error.
 - D. provide an opportunity to practice the procedure.

DIRECTIONS FOR THE OPEN-RESPONSE ITEM ASSIGNMENT

This section of the test consists of an open-response item assignment that appears on the following page. You will be asked to prepare a written response of approximately 150–300 words, or 1–2 pages, for the assignment. You should use your time to plan, write, review, and edit your response for the assignment.

Read the topic and directions for the assignment carefully before you begin to work. Think about how you will organize your response.

As a whole, your response to the assignment must demonstrate an understanding of the knowledge of the field. In your response to the assignment, you are expected to demonstrate the depth of your understanding of the subject area by applying your knowledge rather than by merely reciting factual information.

Your response to the assignment will be evaluated based on the following criteria.

- **PURPOSE:** the extent to which the response achieves the purpose of the assignment
- **SUBJECT KNOWLEDGE:** appropriateness and accuracy in the application of subject knowledge
- **SUPPORT:** quality and relevance of supporting evidence
- **RATIONALE:** soundness of argument and degree of understanding of the subject area

The open-response item assignment is intended to assess subject knowledge. Your response must be communicated clearly enough to permit valid judgment of the evaluation criteria by scorers. Your response should be written for an audience of educators in this field. The final version of your response should conform to the conventions of edited American English. Your response should be your original work, written in your own words, and not copied or paraphrased from some other work.

Be sure to write about the assigned topic. 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 response.

Write or print your response in the space provided following the assignment.

OPEN-RESPONSE ITEM ASSIGNMENT

Use the information below to complete the exercise that follows.

After growing to maturity, a flowering plant produces flowers and then seeds. The offspring produced by the plant is a mix of genetic information from its two parents.

Using your knowledge of life science:

- describe two ways that flowering plants are pollinated; and
- explain the process by which some genetic material from each of the two parent plants contributes to the genetic makeup of the offspring.

[illegible]

PRACTICE TEST RESULTS

PRACTICE TEST RESULTS OVERVIEW

The practice test provides valuable information regarding your preparedness for the MTEL General Curriculum (03): Multi-Subject subtest. In this section, you will find information and tools to help you determine your preparedness on the various sections of the test.

Multiple-Choice Questions

A Multiple-Choice Question Answer Key Worksheet is provided to assist you in evaluating your multiple-choice responses. The worksheet contains five columns. The first column indicates the multiple-choice question number, the second column indicates the objective to which the test question was written, and the third column indicates the correct response. The remaining columns are for your use in calculating the number of multiple-choice questions you answered correctly or incorrectly.

An Evaluation Chart for the multiple-choice questions is also provided to help you assess which content covered by the test objectives may require additional study.

Multiple-Choice Question Analyses are provided to explain the correct answer for each question as well as why the other responses are not correct.

Open-Response Item

Evaluation Information, Sample Responses and Analyses, as well as a Scoring Rubric are provided for this item. You may wish to refer to this information when evaluating your practice test response.

Total Test

Practice Test Score Calculation information is provided to help you estimate your score on the practice test. Although you cannot use this practice test to precisely predict how you might score on an official MTEL General Curriculum: Multi-Subject subtest, you may be able to determine your degree of readiness to take an MTEL test at an operational administration. No passing score has been determined for the practice test.

**MULTIPLE-CHOICE QUESTION
ANSWER KEY WORKSHEET**

Question Number	Objective Number	Correct Response	Your Response	
			Correct?	Incorrect?
1	0001	A		
2	0001	B		
3	0001	D		
4	0001	B		
5	0002	A		
6	0002	B		
7	0002	D		
8	0003	D		
9	0003	C		
10	0003	D		
11	0004	B		
12	0004	D		
13	0004	C		
14	0005	B		
15	0005	B		
16	0005	D		
17	0006	C		
18	0006	C		
19	0006	A		
20	0006	B		
21	0006	B		
22	0007	A		
23	0007	D		
24	0007	D		
25	0007	A		
26	0007	C		
27	0008	A		
28	0008	B		
29	0008	A		
30	0009	B		

**MULTIPLE-CHOICE QUESTION
ANSWER KEY WORKSHEET (continued)**

Question Number	Objective Number	Correct Response	Your Response	
			Correct?	Incorrect?
31	0009	D		
32	0009	C		
33	0009	B		
34	0009	B		
35	0010	A		
36	0010	D		
37	0010	B		
38	0010	A		
39	0010	C		
40	0011	C		
41	0011	B		
42	0011	C		
43	0011	C		
44	0012	C		
45	0012	D		
46	0012	A		
47	0012	D		
48	0013	A		
49	0013	C		
50	0013	B		
51	0013	C		
52	0013	A		
53	0014	D		
54	0014	B		
55	0014	A		

Count the number of multiple-choice questions you answered correctly:

_____ of 55 multiple-choice questions

MULTIPLE-CHOICE QUESTION PRACTICE TEST EVALUATION CHART

In the evaluation chart that follows, the multiple-choice questions are arranged in numerical order and by test objective. Check your responses against the correct responses provided to determine how many questions within each objective you answered correctly.

Subarea I: Language Arts

Objective 0001: Understand the history and structure of the English language.			
1A_____	2B_____	3D_____	4B_____
			_____/4

Objective 0002: Understand American literature and selected literature from classical and contemporary periods.			
5A_____	6B_____	7D_____	
			_____/3

Objective 0003: Understand literary genres, elements, and techniques.			
8D_____	9C_____	10D_____	
			_____/3

Objective 0004: Understand literature for children, including genres, literary elements, and literary techniques.			
11B_____	12D_____	13C_____	
			_____/3

Objective 0005: Understand the writing process and formal elements of writing and composition.			
14B_____	15B_____	16D_____	
			_____/3

Subarea I (Objectives 0001–0005) Total ____/16

**MULTIPLE-CHOICE QUESTION
PRACTICE TEST EVALUATION CHART (continued)**

Subarea II: History and Social Science

Objective 0006: Understand major developments in the history of the United States and the Commonwealth of Massachusetts from precolonial times to the present.

17C____ 18C____ 19A____ 20B____ 21B____ _____/5

Objective 0007: Understand the founding documents and governmental systems of the United States and the Commonwealth of Massachusetts; the principles, ideals, rights, and responsibilities of U.S. citizenship; and the fundamental principles and concepts of economics.

22A____ 23D____ 24D____ 25A____ 26C____ _____/5

Objective 0008: Understand major developments and figures in world history.

27A____ 28B____ 29A____ _____/3

Objective 0009: Understand basic geographic concepts, phenomena, and processes, and demonstrate knowledge of the major geographic features and regions of the world, the United States, and the Commonwealth of Massachusetts.

30B____ 31D____ 32C____ 33B____ 34B____ _____/5

Subarea II (Objectives 0006–0009) Total _____/18

**MULTIPLE-CHOICE QUESTION
PRACTICE TEST EVALUATION CHART (continued)**

Subarea III: Science and Technology/Engineering

Objective 0010: Understand and apply basic concepts and principles of life science to interpret and analyze phenomena.					
35A_____	36D_____	37B_____	38A_____	39C_____	_____/5

Objective 0011: Understand and apply basic concepts and principles of the physical sciences to interpret and analyze phenomena.					
40C_____	41B_____	42C_____	43C_____		_____/4

Objective 0012: Understand and apply basic concepts and principles of the earth and space sciences to interpret and analyze phenomena.					
44C_____	45D_____	46A_____	47D_____		_____/4

Objective 0013: Understand the foundations of scientific thought; the historical development of major scientific ideas and technological discoveries; and the relationships among scientific discoveries, technological developments, and society.					
48A_____	49C_____	50B_____	51C_____	52A_____	_____/5

Objective 0014: Understand the principles and procedures of scientific inquiry and experimentation; the relationships among science, technology, and engineering; and the principles of engineering design.					
53D_____	54B_____	55A_____			_____/3

Subarea III (Objectives 0010–0014) Total _____/21

OPEN-RESPONSE ITEM EVALUATION INFORMATION

How Open-Response Items Are Scored

Open-response items are scored through a process called focused holistic scoring. Scorers judge the overall effectiveness of the response rather than individual aspects considered in isolation. Scorer judgments are based on the quality of the response, not on length or neatness. Responses must be long enough to cover the topic adequately and scorers must be able to read what is written.

How to Evaluate Your Practice Essay

On the following pages, you will find two "strong" and two "weak" sample responses. PLEASE DO NOT REVIEW THE SAMPLE RESPONSES UNTIL AFTER YOU HAVE WRITTEN YOUR OWN RESPONSE. When you do review the two "strong" and "weak" sample responses and analyses included here, please note the following points:

- ✓ For the purposes of the practice test, responses are identified as "strong" or "weak" rather than given a score point of 1–4.
- ✓ The responses identified as "strong" may contain flaws; however, these responses do demonstrate the performance characteristics of a "strong response."
- ✓ The two "strong" responses demonstrate the examinees' appropriate understanding and application of the subject matter knowledge. However, these responses do not necessarily reflect the full range of "correct answers" that would demonstrate an understanding of the subject matter.
- ✓ The "Analysis" accompanying each "strong" and "weak" response discusses the main attributes of the response, but does not identify all flaws or strengths that may be present.

Compare your practice response to the Sample Responses to determine whether your response is more similar to the strong or weak responses. Also review the Analyses on those pages and the Scoring Rubric to help you better understand the characteristics of strong and weak essays. This evaluation will help you identify specific problems or weaknesses in your practice response. Further information on scoring can be found in the Test Information Booklet and Faculty Guide at www.mtel.nesinc.com and at www.doe.mass.edu/mtel; select "FAQ," then "After the Test."

**OPEN-RESPONSE ITEM
SCORING RUBRIC, SAMPLE RESPONSES,
AND ANALYSES**

Massachusetts Tests for Educator Licensure®
SCORING RUBRIC FOR SUBJECT TESTS

Performance Characteristics:

Purpose	The extent to which the response achieves the purpose of the assignment.
Subject Matter Knowledge	Accuracy and appropriateness in the application of subject matter knowledge.
Support	Quality and relevance of supporting details.
Rationale	Soundness of argument and degree of understanding of the subject matter.

Scoring Scale:

Score Point	Score Point Description
4	The "4" response reflects a thorough knowledge and understanding of the subject matter. • The purpose of the assignment is fully achieved. • There is a substantial, accurate, and appropriate application of subject matter knowledge. • The supporting evidence is sound; there are high-quality, relevant examples. • The response reflects an ably reasoned, comprehensive understanding of the topic.
3	The "3" response reflects an adequate knowledge and understanding of the subject matter. • The purpose of the assignment is largely achieved. • There is a generally accurate and appropriate application of subject matter knowledge. • The supporting evidence is adequate; there are some acceptable, relevant examples. • The response reflects an adequately reasoned understanding of the topic.
2	The "2" response reflects a limited knowledge and understanding of the subject matter. • The purpose of the assignment is partially achieved. • There is a limited, possibly inaccurate or inappropriate, application of subject matter knowledge. • The supporting evidence is limited; there are few relevant examples. • The response reflects a limited, poorly reasoned understanding of the topic.
1	The "1" response reflects a weak knowledge and understanding of the subject matter. • The purpose of the assignment is not achieved. • There is little or no appropriate or accurate application of subject matter knowledge. • The supporting evidence, if present, is weak; there are few or no relevant examples. • The response reflects little or no reasoning about or understanding of the topic.
U	The response is unrelated to the assigned topic, illegible, primarily in a language other than English, not of sufficient length to score, or merely a repetition of the assignment.
B	There is no response to the assignment.

FIRST SAMPLE WEAK RESPONSE FOR THE OPEN-RESPONSE ITEM ASSIGNMENT

There are only two possible ways for plants to become pollinated: by wind or by bees. Some plants have pollen that is easily blown by the wind. Mostly it takes a pretty strong wind to send the pollen flying around. You can tell when it's windy enough for pollination because your car gets all greenish yellow from all the pollen that is blowing around. The pollen also settles on different plants when it lands, and fertilization occurs, especially if there was enough wind for a lot of pollen to get to each plant. The other way is when a bee goes into a flower to find food it fertilizes all the flowers as it flies around.

After the plant is fertilized, the seeds begin to form inside the plant, which in turn causes an offspring. In the making of an offspring much genetic information is passed on. For example, if you open an apple or a tomato or a bean pod there are seeds inside. Everything has seeds inside that are its offspring. An orange has seeds for other oranges and a dandelion has seeds for other dandelions. This is how plants reproduce themselves.

ANALYSIS FOR FIRST WEAK RESPONSE TO THE OPEN-RESPONSE ITEM ASSIGNMENT

This is an example of a weak response because it is characterized by the following:

Purpose: The purpose of the assignment has been partially achieved. While the response generally focuses on pollination and the creation of offspring, the descriptions and explanations are incomplete. The first sentence, for example, states, "There are only two possible ways for plants to become pollinated: by wind or by bees." This declaration omits the role of butterflies, bats, and birds, to name just a few other agents of pollination. The second paragraph contains no scientific description of how a plant's genetic makeup is determined.

Subject Matter Knowledge: The response reflects limited subject matter knowledge about pollination. Comments such as "The pollen settles on different plants when it lands . . ." and "when a bee goes into a flower to find food it fertilizes all the flowers as it flies around" lack critical specification about the conditions under which pollination is effective. The descriptions and explanations of pollination and fertilization are so general that the two terms seem to be used interchangeably, while the assignment requires clear understanding of the differences between these two processes. Similarly, the discussion of genetic makeup does not define a role for either the parent plants or for the male and female organs of a plant. Scientific terminology for and knowledge about plant reproduction is missing.

Support: The only reference to plant reproduction is, "In the making of an offspring much genetic information is passed on." What is *the process by which* plant reproduction allows genetic material to be passed on? The examples of apple seeds and other seeds support the statement that "seeds begin to form inside the plant" after fertilization, but those examples do not shed any light on sexual reproduction in flowering plants or the role of each of the two parent plants.

Rationale: Both paragraphs of the response have discrete bits of information that indicate incomplete understanding. While it is true, for example, that wind and bees are important means by which plants become pollinated, it is not necessarily true that plants become fertilized as a result of having pollen land on them. Similarly, the fact that "Everything has seeds inside that are its offspring" indicates that seeds are critical to plant reproduction, but the issue of *how* they acquire the genetic traits of their parent plants has not been addressed.

SECOND SAMPLE WEAK RESPONSE FOR THE OPEN-RESPONSE ITEM ASSIGNMENT

After growing to maturity, a flowering plant produces flowers and then seeds. The offspring produced by the plant is a mix of genetic information from its two parents. Flowering plants are pollinated in multiple ways. Two types of ways plants are pollinated are with the help of bees and with the help of wind. The genetic material from each of the two parent plants contributes to the genetic makeup of the offspring. Once pollinated, a flowering plant will produce seeds. These seeds are a mixture of genetic information from the plants the bees were feeding on. Once these seeds are released from the female part of the flower, they drop to the ground. Often, these seeds are transported by birds, animals, and the wind. Once transported, the seeds settle to the ground. With the help of water and sunlight, the seeds will begin to grow. As the plant becomes fully mature, it can begin yielding seeds. Once seeds are produced the process of pollination will re-occur. The process of pollination and the distribution of genetic material will occur for the life of the plant and the life of the plant's offspring. As time progresses, the genetic makeup of the new flowering plants will contain genetic information from year's past.

ANALYSIS FOR SECOND WEAK RESPONSE TO THE OPEN-RESPONSE ITEM ASSIGNMENT

This is an example of a weak response because it is characterized by the following:

Purpose: The purpose of the assignment is not in focus in this response. The candidate hops from subject to subject, mixing up the topics of pollination, seed dispersal, genetics, and the life cycle of a plant. The result is a confused set of ideas that reveal weak knowledge of these topics.

Subject Matter Knowledge: The first two sentences of the response copy exact wording from the first two sentences of the assignment. The only information about pollination in this response is in the sentence, "Two types of ways plants are pollinated are with the help of bees and with the help of wind." Nothing further is said to explain how these two agents of pollination play a role in that process. The only statement about genetics provided in the response borrows the exact wording given in the assignment: "The genetic material from each of the two parent plants contributes to the genetic makeup of the offspring." The assignment required that the candidate use his or her subject matter knowledge from the life sciences to explain and develop that idea.

Support: Where the response does try to discuss an idea by providing some support, the supportive information is often only partially true, such as "Once pollinated, a flowering plant will produce seeds" and "The offspring produced by the plant is a mix of genetic information from its two parents." Other statements intended as support are irrelevant to the topic, such as "Once the seeds are released from the female part of the flower, they drop to the ground" and "Once seeds are produced the process of pollination will re-occur." This extraneous information weakens the response, as it contains inaccuracies and indicates an inability to distinguish between important and irrelevant points on this topic.

Rationale: The response is so disorganized that it is difficult to see a logical progression of thought from one sentence to the next. The first three sentences, for example, each have three different topics: the life cycle, genetics, pollination. The failure to clearly distinguish one process from another weakens the response. No single concept is discussed with careful reasoning and depth of understanding.

FIRST SAMPLE STRONG RESPONSE FOR THE OPEN-RESPONSE ITEM ASSIGNMENT

There are various ways that flowering plants are pollinated. One way is by the wind blowing pollen from one plant to another of the same species. The pollen a plant produces is microscopic and very light, so it doesn't take too much for it to blow around. Also, there are millions of grains of pollen coming out of each tree, so the chances of wind pollination are really high. Another way pollination can happen is from bees, butterflies, and other insects travelling from flower to flower to suck the nectar from the plant. When insects land on the flower and go after the nectar, they might accidentally rub their legs or antennae against the part of the flower that contains pollen, so the pollen is sticking to them and then they may accidentally rub that pollen off onto the next flower they visit.

When a grain of pollen from one flower lands on another of the same species, either from the wind or from insect activity, it must land on the pistil for fertilization to take place. Pollen contains the male information that has to get to the eggs inside the pistil. The pollen only contains half of the genetic material from its parent plant, and the eggs only have half of the genetic material from their parent plant. When they merge the offspring (usually seeds) have a genetic makeup that's half from the male pollen and half from the female eggs.

ANALYSIS FOR FIRST STRONG RESPONSE TO THE OPEN-RESPONSE ITEM ASSIGNMENT

This is an example of a strong response because it is characterized by the following:

Purpose: The candidate fulfills the purpose of the assignment by detailing two ways that flowering plants are pollinated and explaining how plants inherit genetic material.

Subject Matter Knowledge: The pollination of flowering plants by wind and by insects are both described accurately, as is the process by which genetic material from male and female organs contribute to the makeup of the plant's offspring. Several precise terms from life science are used correctly: antenna, nectar, pistil, pollen grain, fertilization, parent plant.

Support: The response is strengthened by the amount and quality of the supporting details that are provided. To support the idea of wind pollination, for example, the candidate details the microscopic size, light weight, and abundance of pollen. To support the idea of insect pollination, the response details how pollen is transferred from a flower, to the insect, to the next flower. Fertilization is also described precisely: ". . . a grain of pollen . . . must land on the pistil for fertilization to take place. Pollen contains the male information that has to get to the eggs inside the pistil." All of this supportive detail further demonstrates the candidate's grasp of the relevant concepts and subject matter knowledge.

Rationale: Each part of the response is clear, accurate, logical, and easy to follow. The candidate provides reasons why wind pollination and insect pollination work, reasons why the pollen grain has to land on the pistil, and reasons why offspring inherit genetic characteristics from both parent plants.

SECOND SAMPLE STRONG RESPONSE FOR THE OPEN-RESPONSE ITEM ASSIGNMENT

People or animals moving through the garden can brush against flowers just enough to cause pollination. As long as a grain of pollen from the anthers of one plant shakes off and happens to land on the stigma of another, pollination has occurred. However, chances of pollination are better when hummingbirds, bees, ants, and other insects get inside the flower and go after its nectar. This kind is called cross-pollination. A hummingbird's long beak or an insect's body will be covered in pollen after it drinks nectar. Some of the pollen that sticks to them gets deposited inside the next flower they visit, and some of that pollen is likely to land on the stigma, which is in the same area where the nectar is produced.

Pollen grains come from the male organs of a parent plant and have only half of the genetic information needed to produce offspring. When the pollen travels down into the female organs of a different plant, the sperm merges with an egg that also has only half of the genetic information from that parent plant. Once fertilization has occurred, a seed will form -- a seed that received half of its genetic material from the pollen grain's parent plant and half from the egg's parent plant.

ANALYSIS FOR SECOND STRONG RESPONSE TO THE OPEN-RESPONSE ITEM ASSIGNMENT

This is an example of a strong response because it is characterized by the following:

Purpose: The purpose of the assignment is fully achieved. The response is clearly focused on addressing each of the two parts of the assignment and provides a thorough discussion of both pollination and the genetic makeup of plants.

Subject Matter Knowledge: This response demonstrates a firm grasp of two different means of pollination—one that happens by chance and one that occurs as a result of the activity of insects and birds. The anther and stigma are correctly referred to as critical parts in the pollination process. The second paragraph draws on specific and accurate biologic terms—male and female organs, egg, sperm—to explain how a new plant inherits genetic material from two parent plants.

Support: The supportive details provided in this response are relevant to the discussion and add depth to the response. "The hummingbird's long beak," for example, and ". . . in the same area where nectar is produced" reveal specific conceptual understanding of pollination. This adds high-quality, relevant detail to the candidate's discussion of the genetics of flowering plants.

Rationale: The response is clearly reasoned throughout, with logical, step-by-step explanations of pollination and the genetics of plant offspring.

PRACTICE TEST SCORE CALCULATION

The practice test score calculation is provided so that you may better gauge your performance and degree of readiness to take an MTEL test at an operational administration. Although the results of this practice test may be used as one indicator of potential strengths and weaknesses in your knowledge of the content on the official test, it is not possible to predict precisely how you might score on an official MTEL test.

The Sample Responses and Analyses for the open-response items may help you determine whether your responses are more similar to the strong or weak samples. The Scoring Rubric can also assist in estimating a score for your open responses. You may also wish to ask a mentor or teacher to help evaluate your responses to the open-response questions prior to calculating your total estimated score.

How to Calculate Your Practice Test Score

Review the directions in the sample below and then use the blank practice test score calculation worksheet on the following page to calculate your estimated score.

SAMPLE

Multiple-Choice Section

Enter the total number of multiple-choice questions you answered correctly: 39

Use Table 1 below to convert that number to the score and write your score in **Box A**: A: 216

Open-Response Section

Enter the number of points (1 to 4) for your open-response question: 3

Use Table 2 below to convert that number to the score and write your score in **Box B**: B: 24

Total Practice Test Score (Estimated MTEL Score)

Add the numbers in **Boxes A and B** for an estimate of your MTEL score: A + B = 240

Practice Test Score Calculation Worksheet: General Curriculum Multi-Subject Subtest

Table 1:

Number of Multiple-Choice Questions Correct	Estimated MTEL Score		Number of Multiple-Choice Questions Correct	Estimated MTEL Score
0 to 10	115		32 to 34	196
11 to 13	125		35 to 37	206
14 to 16	135		38 to 40	216
17 to 19	145		41 to 43	226
20 to 22	155		44 to 46	236
23 to 25	165		47 to 49	246
26 to 28	176		50 to 52	257
29 to 31	186		53 to 55	267

Table 2:

Number of Open-Response Question Points	Estimated MTEL Score
1	12
2	18
3	24
4	30

Print the form below to calculate your estimated practice test score.

Multiple-Choice Section

Enter the total number of multiple-choice questions you answered correctly:

Use Table 1 above to convert that number to the score and write your score in **Box A**:

A:

Open-Response Section

Enter the number of points (1 to 4) for your open-response question:

Use Table 2 above to convert that number to the score and write your score in **Box B**:

B:

Total Practice Test Score (Estimated MTEL Score)

Add the numbers in **Boxes A and B** for an estimate of your MTEL score:

A + B =

ACKNOWLEDGMENTS

Page

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