

A black and white photograph of a stack of books and a calculator. The calculator has a small screen displaying "3-A".

2010

AP[®] Microeconomics

RELEASED EXAM

- Multiple-Choice Questions, Answer Key and Diagnostic Guide
- Free-Response Questions with Scoring Guidelines, Sample Student Responses and Scoring Commentary
- Statistical Information About Student Performance on the 2010 Exam

About the College Board

The College Board is a mission-driven not-for-profit organization that connects students to college success and opportunity. Founded in 1900, the College Board was created to expand access to higher education. Today, the membership association is made up of more than 5,900 of the world's leading educational institutions and is dedicated to promoting excellence and equity in education. Each year, the College Board helps more than seven million students prepare for a successful transition to college through programs and services in college readiness and college success — including the SAT® and the Advanced Placement Program®. The organization also serves the education community through research and advocacy on behalf of students, educators and schools.

For further information, visit www.collegeboard.org.

The College Board strongly encourages educators to make equitable access a guiding principle for their AP programs by giving all willing and academically prepared students the opportunity to participate in AP. We encourage the elimination of barriers that restrict access to AP for students from ethnic, racial and socioeconomic groups that have been traditionally underserved. Schools should make every effort to ensure their AP classes reflect the diversity of their student population. The College Board also believes that all students should have access to academically challenging course work before they enroll in AP classes, which can prepare them for AP success. It is only through a commitment to equitable preparation and access that true equity and excellence can be achieved.

The 2010 AP® Microeconomics Released Exam

Contains:

- Multiple-Choice Questions, Answer Key and Diagnostic Guide
- Free-Response Questions with:
 - Scoring Guidelines
 - Sample Student Responses
 - Scoring Commentary
- Statistical Information About Student Performance on the 2010 Exam

Materials included in this Released Exam may not reflect the current AP Course Description and exam in this subject, and teachers are advised to take this into account as they use these materials to support their instruction of students. For up-to-date information about this AP course and exam, please download **the official AP Course Description from the AP Central® Web site at apcentral.collegeboard.com.**

Chapter I: The AP® Process

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This chapter will give you a brief overview of the development and scoring processes for the AP Microeconomics Exam. You can find more detailed information at AP Central® (apcentral.collegeboard.com).

What Is the Purpose of the AP Microeconomics Exam?

The AP Microeconomics Exam is designed to allow students to demonstrate the knowledge, understanding and analytical skills equivalent to those gained by students who have successfully completed a college-level introductory course in microeconomics. The multiple-choice section of the exam covers the breadth of the curriculum in terms of knowledge, understanding and application of economic concepts. The free-response section allows students to demonstrate their knowledge and ability to apply economic principles to analyze and solve real-world problems. The free-response questions are scored both for the correctness of the methodology applied and the depth of reasoning and analysis demonstrated. A qualifying score on the AP Microeconomics Exam may allow students to begin their college careers with credit for an introductory microeconomics course and/or distribution credit for a course in social sciences or humanities.

Who Develops the Exam?

The AP Microeconomics Development Committee, working with Assessment Specialists at ETS, develops the exam. This committee is appointed by the College Board

and is composed of six teachers from secondary schools, colleges and universities in the United States. The members provide different perspectives: high school teachers offer valuable advice regarding realistic expectations when matters of content coverage, skills required and clarity of phrasing are addressed. College and university faculty members ensure that the questions are at the appropriate level of difficulty for students planning to continue their studies at colleges and universities. Committee members typically serve for one to four years.

The Chief Reader, a college professor responsible for supervising the scoring of the free-response questions at the AP Reading, also aids in the development process. The Chief Reader attends every committee meeting to ensure that the free-response questions selected for the exam can be scored reliably. The expertise of the Chief Reader and the committee members who have scored exams in past years is notable: they bring to bear their valuable experience from past AP Readings and suggest changes to improve the quality and the performance of the questions. To find a list of current AP Development Committee members, please visit apcentral.collegeboard.com/developmentcommittees.

How Is the Exam Developed?

The Development Committee sets the exam specifications based on curriculum surveys of colleges, determining what will be tested and how it will be tested. It also determines the appropriate level of difficulty for the exam, based on its understanding of the level of competence required for succeeding in introductory microeconomics courses in colleges and universities. Each AP Microeconomics Exam is the result of several stages of development that together span two or more years.

Section I — Multiple Choice

1. Development Committee members and other college faculty write and submit multiple-choice questions directed to the major content areas outlined in the microeconomics section of the *AP Economics Course Description*.
2. ETS Assessment Specialists perform preliminary reviews to ensure that the multiple-choice questions are worded clearly and concisely.
3. At the committee meetings, which are held three times a year, the committee members review, revise and approve the draft questions for use on future exams. They ensure

that the questions are clear and unambiguous, that each question has only one correct answer and that the difficulty level of the questions is appropriate.

4. From the pool of approved questions, ETS Assessment Specialists select an appropriate mix of materials for the multiple-choice section of an exam, making sure that the questions are distributed across the content areas as specified by the Development Committee in the microeconomics section of the *AP Economics Course Description*.
5. The committee thoroughly reviews the draft exam in various stages of its development, revising the individual questions and the mix of questions until it is satisfied with the result.

The committee controls the difficulty level of the multiple-choice section by selecting a wide range of questions, a subset of which has been used in an earlier form of the exam.

Section II — Free Response

1. Well in advance of the exam administration, members of the Development Committee and other college faculty write free-response questions for the exam. These are assembled into a free-response question pool.
2. From this pool, the committee selects an appropriate combination of questions for a particular exam. It reviews and revises these questions at all stages of development of that exam to ensure that they are of the highest possible quality. The committee considers, for example, whether the questions will offer an appropriate level of difficulty and whether they will elicit answers that will allow Readers, the high school and college microeconomics teachers who score the free-response questions, to discriminate among the responses along the scoring guidelines used for the different questions. An ideal question enables stronger students to demonstrate their accomplishments while revealing the limitations of less proficient students.

Question Types

The 2010 AP Microeconomics Exam contains a 70-minute multiple-choice section consisting of 60 questions, and a 60-minute free-response section consisting of three questions (two short-answer concept questions and one long analysis question). The two sections are designed to measure a wide range of skills.

Multiple-choice questions are useful for measuring a student's level of competence in a variety of contexts. In addition, they have three other strengths:

1. They are highly reliable. Reliability, or the likelihood that students of similar ability levels taking a different form of the exam will receive the same scores, is controlled more effectively with multiple-choice questions than with free-response questions.
2. They allow the Development Committee to include a selection of questions at various levels of difficulty, thereby ensuring that the measurement of differences in students' achievement is optimized. For AP Exams, the most important distinctions are between students earning scores of 2 and 3 and those earning scores of 3 and 4. These distinctions are usually best accomplished by using many questions of middle difficulty.
3. They allow comparison of the ability level of the current students with those from another year. A number of questions from an earlier exam are included in the current one, allowing comparisons to be made between the scores of the earlier group of students and those of the current group. This information, along with other data, is used to establish AP scores that reflect the competence demanded by the Advanced Placement Program® and that can be legitimately compared with scores from earlier years.

Free-response questions on the AP Microeconomics Exam are a more appropriate tool for evaluating a student's ability to use analytical and organizational skills. They allow students to use their powers of analysis to build logical structures with supporting arguments and interconnected elements.

The free-response and multiple-choice sections are designed to complement each other and to meet the overall course objectives and exam specifications. After each exam administration, the questions in each section are analyzed both individually and collectively, and the findings are used to improve the following year's exam.

Scoring the Exam

Who Scores the AP Microeconomics Exam?

The multiple-choice answer sheets are machine scored. The teachers who score the free-response section of the AP Microeconomics Exam are known as "Readers." The majority of these Readers are experienced faculty members who teach either an AP Microeconomics course in a high school or an equivalent course at a college or university in the United States or Canada. Great care is taken to obtain a broad and balanced group of Readers. Among the factors

considered before appointing someone to the role are school locale and setting (urban, rural and so on), gender, ethnicity and years of teaching experience. University and high school microeconomics teachers who are interested in applying to be a Reader at a future AP Reading can complete and submit an online application via AP Central (apcentral.collegeboard.com/readers) or request more information by e-mailing apreader@ets.org.

In June 2010, approximately 100 economics teachers and professors gathered at the Duke Energy Convention Center in Cincinnati, Ohio to participate in the scoring session for the AP Microeconomics Exam. Some of the most experienced members of this group were invited to serve as Question Leaders and Table Leaders, and they arrived at the Reading site early to help prepare for the scoring session. The remaining Readers were divided into groups, with each group advised and supervised by a Table Leader. Under the guidance of the Chief Reader, the Question Leaders and Table Leaders assisted in establishing the final scoring guidelines, selecting sample student responses that exemplified the guidelines, and preparing for Reader training. All of the free-response questions on the 2010 AP Microeconomics Exam were evaluated by the Readers at this single, central scoring session under the supervision of the Chief Reader.

Ensuring Accuracy

The primary goal of the scoring process is to have all Readers score their sets of responses fairly, consistently and with the same guidelines as the other Readers. This goal is achieved through the creation of detailed scoring guidelines, the thorough training of all Readers and the various checks and balances that are applied throughout the AP Reading.

How the Scoring Guidelines Are Created

1. As the questions are being developed and reviewed before the Reading, the Development Committee and the Chief Reader discuss the scoring of the free-response questions to ensure that the questions can be scored validly and reliably.
2. During the pre-Reading period, several important tasks are completed. The Chief Reader presents the preliminary scoring guidelines and works with the Question Leaders and Table Leaders to refine them. The Question Leaders and Table Leaders then review these scoring guidelines and test them by applying them to actual student responses. The scoring guidelines are then revised and adjusted, if necessary, to reflect not only the committee's original intent, but also the full range of actual responses that will be encountered by the Readers.

3. Once the scoring of student responses begins, no changes or modifications in the scoring guidelines are made. Given the expertise of the Chief Reader and the analysis of many student responses by Question Leaders and Table Leaders in the pre-Reading period, these guidelines can be used to cover the whole range of student responses. Each Question Leader and Table Leader devotes a great deal of time and effort during the first day of the Reading to teaching the scoring guidelines for that particular question and to ensuring that everyone evaluating responses for that question understands the scoring guidelines and can apply them consistently and reliably.

Training Readers to Apply the Scoring Guidelines

Because Reader training is so vital in ensuring that students receive an AP score that accurately reflects their performance, the process is thorough:

1. On the first day of the Reading, the Chief Reader provides an overview of the exam and the scoring process to the entire group of Readers. The Readers then break into smaller groups, with each group at a table working on a particular question or questions for which it receives specific training.
2. Each Table Leader directs a discussion of the assigned question, commenting on the question requirements and student performance expectations. The scoring guidelines for the question are explained and discussed.
3. The Readers are trained to apply the scoring guidelines by reading and evaluating samples of student responses that were selected at the pre-Reading session as clear examples of the various score points and the kinds of responses Readers are likely to encounter. Table Leaders explain why the responses received particular scores. Once a table completes the scoring of the training samples successfully, they start a Round-Robin scoring process before they are instructed to score on their own. In the Round-Robin stage, each Reader reads and scores the same folder of student responses. The scores given by each Reader are then evaluated in order to resolve any inconsistency in the application of the scoring guidelines.
4. When the Table Leader is convinced the Readers understand the scoring guidelines and can apply them uniformly, the scoring of student responses begins. Readers are encouraged to seek advice from each other, the Table Leader, Question Leader or Chief Reader when in doubt about a score.

5. Throughout the course of the Reading, Readers discuss with their Table Leader any student response that seems problematic or inappropriate. A student response that is problematic receives multiple readings and evaluations.

Maintaining the Scoring Guidelines

Throughout the Reading, the Table Leaders continue to reinforce the use of the scoring guidelines by asking their groups to review sample responses that have already been discussed as clear examples of particular scores, or to score new samples and discuss these scores with them. This procedure helps the Readers adhere to the standards of the group and helps to ensure that a student response will get the same score whether it is evaluated at the beginning, middle or end of the Reading.

A potential problem is that a Reader could unintentionally score a student response higher or lower than it deserves because that same student performed well or poorly on other questions. The following steps are taken to prevent this so-called halo effect:

- A different Reader scores each question and the student's identity is unknown to the Reader. Thus, each Reader can evaluate student responses without being prejudiced by knowledge about individual students.
- No marks of any kind are made on the students' papers. The Readers record the scores on a form that is identified only by the student's AP number. Readers are unable to see the scores that have been given to other responses in the exam booklet.

Other methods help ensure that everyone is adhering closely to the scoring guidelines:

- Table Leaders backread (reread) a portion of the student responses from each of the Readers in their groups. This approach allows Table Leaders to guide their Readers toward appropriate and consistent interpretations of the scoring guidelines.
- Table Leaders are instructed to begin each day (especially in the early part of the Reading) with Round-Robin scoring. This helps identify any Reader's departure from the scoring guidelines and maintains the consistent application of the guidelines throughout the Reading.
- The Chief Reader and the Question Leaders monitor use of the full range of the scoring scale for the group and for each Reader by checking daily score distributions and by randomly reading selected student responses to check for scoring consistency.

Preparing Students for the Exam

On the AP Microeconomics Exam, students are asked to apply their knowledge of microeconomics by writing responses to two short-answer concept questions and one long analysis question. They are also asked to demonstrate knowledge and understanding of the microeconomics concepts outlined in the *AP Economics Course Description* under four major categories: basic economic concepts, the nature and functions of product markets, factor markets, and market failure and the role of government. The following is intended as a guide for learning to respond to the free-response questions.

Essential Features of Student Responses

The first, essential task for responding successfully to the free-response questions is to recognize the subject matter or topic of the question. Students should master the concepts and topics outlined in the *AP Economics Course Description*, understanding the economics concepts and topics in both theory and application.

The second task is to recognize what the question asks the student to do. Understanding the meaning of the command words in the question and responding appropriately increases the chance of giving a correct response. Students should realize that there is something of an order to the tasks contained in a question. Listing or identifying is easier than explaining and analyzing. A "list" need not be in complete sentences, while an "explanation" may require several sentences. Thus, it is important for the students to focus on command words and practice appropriate responses.

Finally, students should also be encouraged to practice drawing and labeling graphs correctly. In a typical exam, about 20 percent of the scores are associated with drawing graphs as part of an explanation to a question.

Chapter II: The 2010 AP Microeconomics Exam

- Exam Content and Format
- Giving a Practice Exam
- Instructions for Administering the Exam
- Blank Answer Sheet
- The Exam

Exam Content and Format

The 2010 AP Microeconomics Exam is 2 hours and 10 minutes in length and has two sections:

- A 70-minute multiple-choice section consisting of 60 questions, accounting for two thirds of the final score.
- A 60-minute free-response section consisting of 2 short-answer questions and 1 long question, accounting for one third of the final score.

Giving a Practice Exam

The following pages contain the instructions as they appeared in the 2009-10 *AP Examination Instructions* for administering the 2010 AP Microeconomics Exam. Following these instructions are a blank 2010 answer sheet and the 2010 AP Microeconomics Exam. If you plan to use this released exam to test your students, you may wish to use these instructions to create an exam situation that closely resembles an actual administration. If so, read only the indented, boldface directions to the students; all other instructions are for the person administering the exam and need not be read aloud. Some instructions, such as those referring to the date, the time and page numbers, are no longer relevant and should be ignored. Note: the term “grades,” which appears in the exam and exam instructions that follow, refers to AP Exam scores of 1, 2, 3, 4 or 5.

Another publication you might find useful is the *Packet of 10* — ten copies of the 2010 AP Microeconomics Exam, each with a blank answer sheet. You can order this title online at the College Board Store (store.collegeboard.com).

2010 AP Microeconomics Exam Format

Multiple Choice (Section I)

60 questions 70 minutes

Free Response (Section II)

3 questions 60 minutes

(2 short-answer questions, 1 long-answer question)

Instructions for Administering the Exam
(from the 2009-10 *AP Examination Instructions* book)

SECTION I: Multiple-Choice Questions

- Do not begin the exam instructions below until you have completed the appropriate
● General Instructions for your group.**

Make sure you begin the exam at the designated time. When you have completed the General Instructions, say:

[At the Macroeconomics administration only, say:]

**It is Thursday morning, May 13, and you will be taking the
AP Macroeconomics Exam.**

[At the Microeconomics administration only, say:]

**It is Thursday afternoon, May 13, and you will be taking the
AP Microeconomics Exam.**

[Continue for both administrations:]

**In a moment, you will open the packet that contains your exam materials.
By opening this packet, you agree to all of the AP Program's policies and
procedures outlined in the 2009-10 *Bulletin for AP Students and Parents*.
You may now open your exam packet and take out the Section I booklet, but
do not open the booklet or the shrinkwrapped Section II materials. Put the
white seals aside. Read the statements on the front cover of Section I and
look up when you have finished. . . .**

**Now sign your name and write today's date. Look up when you have
finished. . . .**

Now print your full legal name where indicated. Are there any questions? . . .

Answer any questions. Then say:

**Now turn to the back cover and read it completely. Look up when you
have finished. . . .**

Are there any questions? . . .

Answer any questions. Then say:

**Section I is the multiple-choice portion of the exam. You may never discuss
these specific multiple-choice questions at any time in any form with anyone,
including your teacher and other students. If you disclose these questions
through any means, your AP Exam score will be canceled. Are there any
questions? . . .**

Answer any questions. Then say:

**You must complete the answer sheet using a No. 2 pencil only. Mark
all of your responses on your answer sheet, one response per question.
Completely fill in the ovals. There are more answer ovals on the answer
sheet than there are questions, so you will have unused ovals when you
reach the end. Your answer sheet will be scored by machine; any stray**

marks or smudges could be read as answers. If you need to erase, do so carefully and completely. No credit will be given for anything written in the exam booklet. Scratch paper is not allowed, but you may use the margins or any blank space in the exam booklet for scratch work. Calculators are not allowed on any part of this exam. Are there any questions? . . .

Answer all questions regarding procedure. Then say:

You have 1 hour and 10 minutes for this section. Open your Section I booklet and begin.

 Note Start Time here _____. Note Stop Time here _____. You and your proctors should make sure students are marking their answers in pencil on their answer sheets, and that they are not looking at their shrinkwrapped Section II booklets. After 1 hour and 10 minutes, say:

Stop working. Close your booklet and put your answer sheet on your desk, face up. I will now collect your answer sheet.

After you have collected an answer sheet from each student, say:

Take your seals and press one on each area of your exam booklet marked "PLACE SEAL HERE." Fold them over the open edges and press them to the back cover. When you have finished, place the booklet on your desk with the cover face up. . . .

I will now collect your Section I booklet.

As you collect the sealed Section I booklets, check to be sure that each student has signed the front cover. There is a 10-minute break between Sections I and II. When all Section I materials have been collected and accounted for and you are ready for the break, say:

Please listen carefully to these instructions before we take a break. Everything you placed under your chair at the beginning of the exam must remain there. You are not allowed to consult teachers, other students, or textbooks about the exam materials during the break. You may not make phone calls, send text messages, check e-mail, access a computer, calculator, cell phone, PDA, MP3 player, e-mail/messaging device, or any other electronic or communication device. Remember, you are not allowed to discuss the multiple-choice section of this exam with anyone at any time. Failure to adhere to any of these rules could result in cancellation of your score. Please leave your shrinkwrapped Section II package on top of your desk during the break. You may get up, talk, go to the restroom, or get a drink. Are there any questions? . . .

Answer all questions regarding procedure. Then say:

 **Let's begin our break. Testing will resume at _____.**

SECTION II: Free-Response Questions

Proctors at schools outside North, Central, and South America: In this section, any information in [brackets] is specific to the form of the exam that you are administering. Please be sure to read spoken instructions shown in [brackets].

After the break, say:

May I have everyone's attention? Place your Student Pack on your desk. . . .

You may now open the shrinkwrapped Section II package, but do not break the seal on the pink [goldenrod] booklet until you are told to do so. . . .

Read the bulleted statements on the front cover of the pink [goldenrod] booklet. Look up when you have finished. . . .

Now place an AP number label on the shaded box. If you don't place an AP number label in this box, it may be impossible to identify your booklet, which could delay or jeopardize your AP score. If you don't have any AP number labels, write your AP number in the box. Look up when you have finished. . . .

Read the last statement. . . .

Using a pen with black or dark blue ink, print the first, middle, and last initials of your legal name in the boxes and print today's date where indicated. This constitutes your signature and your agreement to the conditions stated on the front cover. . . .

Turn to the back cover and read Item 1 under "Important Identification Information." Print your identification information in the boxes. Note that you must print the first two letters of your last name and the first letter of your first name. Look up when you have finished. . . .

In Item 2, print your date of birth in the boxes. . . .

Read Item 3 and copy the school code you printed on the front of your Student Pack into the boxes. . . .

Read Item 4. . . .

Are there any questions? . . .

Answer all questions regarding procedure. Then say:

I need to collect the Student Pack from anyone who will be taking another AP Exam. If you are taking another AP Exam, put your Student Pack on your desk. You may keep it only if you are not taking any other AP Exams this year. If you have no other AP Exams to take, place your Student Pack under your chair now. . . .

While Student Packs are being collected, read the "At a Glance" column and the instructions on the back cover of the pink [goldenrod] booklet. Do not break the seal on the booklet until you are told to do so. Look up when you have finished. . . .

Collect the Student Packs. Then say:

Are there any questions? . . .

Answer all questions regarding procedure. Then say:

Now take the green [lavender] insert and, in the upper right-hand corner of the cover, print your name, your teacher's name, and your school's name. . . .

Read the information on the front cover of the green [lavender] insert. Look up when you have finished. . . .

Section II begins with a 10-minute reading period. During the reading period, you will read and plan what you will write. You may make notes in the green [lavender] insert. Are there any questions? . . .

Answer any questions. Then say:

You may now open the green [lavender] insert and begin the 10-minute reading period. Do not break the seal on the pink [goldenrod] booklet yet.

 Note Start Time here _____. Note Stop Time here _____. After 10 minutes, say:

Stop. The reading period is over. You have 50 minutes to complete Section II.

You are responsible for pacing yourself, and may proceed freely from one question to the next. You may use the green [lavender] insert for scratch paper, but you must write your answers in the pink [goldenrod] booklet using a pen. It is not permissible to use other colored pens or pencils in drawing graphs or diagrams. Write the number of the question you are working on at the top of each page in the pink [goldenrod] booklet. If you need more paper during the exam, raise your hand. At the top of each extra piece of paper you use, be sure to write your AP number and the number of the question you are working on. Are there any questions? . . .

Answer any questions. Then say:

Using your finger, break open the sealed Section II booklet. Do not peel the seal away from the booklet. Begin Section II.

 Note Start Time here _____. Note Stop Time here _____. You and your proctors should make sure students are using pens with black or dark blue ink and that they are writing their answers in their pink [goldenrod] Section II booklets and not in their green [lavender] inserts. After 40 minutes, say:

There are 10 minutes remaining.

After 10 minutes, say:

Stop working and close your exam booklet and green [lavender] insert. Put your pink [goldenrod] booklet on your desk, face up. Put your green [lavender] insert next to it. . . .

If any students used extra paper for the free-response section, have those students staple the extra sheet/s to the first page corresponding to that question in their free-response booklets. Then say:

Remain in your seat, without talking, while the exam materials are collected. . . .

Collect a pink [goldenrod] Section II booklet and a green [lavender] insert from every student. Check for the following:

- Section II booklet front cover: The student placed an AP number label in the shaded box, and printed his or her initials and today's date.
- Section II booklet back cover: The student completed the "Important Identification Information" area.
- The student wrote answers in the pink [goldenrod] booklet and not in the green [lavender] insert.

The green [lavender] inserts must be stored securely for no fewer than two school days. After the two-day holding time, the green [lavender] inserts may be given to the appropriate AP teacher(s) for return to the students. When all exam materials have been collected and accounted for, return to students any electronic devices you may have collected before the start of the exam. Then say:

Your teacher will return your green [lavender] insert to you in about two days. You may not discuss the free-response questions with anyone until that time. Remember that the multiple-choice questions may never be discussed or shared in any way at any time. You should receive your score report in the mail about the third week of July.

If any students completed the AP number card at the beginning of this exam, say:

Please remember to take your AP number card with you.

Then say:

You are now dismissed.

Exam materials should be put in secure storage until they are returned to the AP Program after your school's last administration. Before storing materials, check your list of students who are eligible for fee reductions and fill in the appropriate oval on their registration answer sheets. To receive a separate AP Instructional Planning Report or student score roster for each AP class taught, fill in the appropriate oval in the "School Use Only" section of the answer sheet. See "Post-Exam Activities" in the 2009-10 *AP Coordinator's Manual*.

NAME AND EXAM AREA – COMPLETE THIS AREA AT EVERY EXAM.

To maintain the security of the exam and the validity of my AP score, I will allow no one else to see this multiple-choice questions. I will seal the section. I am aware of and agree to the AP Program's policies and procedures as outlined in the 2005-10 Bulletin for AP Students and Parents including testing accommodations (e.g., extended time, computer, etc.) only if I have been preapproved by College Board Services for Students with Disabilities.

A. SIGNATURE

Sign your legal name as it will appear on your college applications.

CollegeBoard AP

Answer Sheet for May 2010, Form 4GBP

PAGE 1

**PLACE YOUR AP® NUMBER LABEL
OR WRITE YOUR AP NUMBER HERE
AT EVERY EXAM!**

B. LEGAL NAME		Legal Last Name—first 15 letters		Legal First Name—first 12 letters		C. YOUR AP NUMBER	
Legal Last Name—first 15 letters		Legal First Name—first 12 letters		D. DATE		E. TIME OF DAY	
				Month	Day	6 AM	7 AM
				May	1	8 AM	9 AM
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				3	3	12 PM	1 PM
				4	4	2 PM	3 PM
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R. This section is for the survey questions in the AP Student Pack. (Do not put responses to exam questions in this section.) Be sure each mark is dark and completely fills the oval.

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S. LANGUAGE—Do not complete this section unless instructed to do so.

If this answer sheet is for the French Language, German Language, Spanish Language, or Spanish Literature Exam, please answer the following questions. (Your responses will not affect your score.)

1. Have you lived or studied for one month or more in a country where the language of the exam you are now taking is spoken? Yes No
2. Do you regularly speak or hear the language at home? Yes No

Indicate your answers to the exam questions in this section. If a question has only four answer options, do not mark option E. Your answer sheet will be scored by machine. Use only No. 2 pencils to mark your answers on pages 2 and 3 (one response per question). After you have determined your response, be sure to completely fill in the oval corresponding to the number of the question you are answering. Stray marks and smudges could be read as answers, so erase carefully and completely. Any improper gridding may affect your score. Answers written in the multiple-choice booklet will not be scored.

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FOR QUESTIONS 76-151, SEE PAGE 3.

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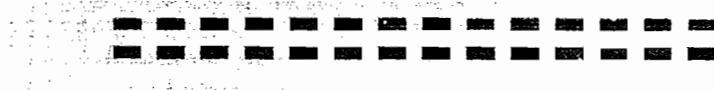
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The Exam**AP® Microeconomics Exam****SECTION I: Multiple-Choice Questions****2010****DO NOT OPEN THIS BOOKLET UNTIL YOU ARE TOLD TO DO SO.**

At-a-Glance	
Total Time	1 hour, 10 minutes
Number of Questions	60
Percent of Total Score	66.6%
Writing Instrument	Pencil required

Instructions

Section I of this exam contains 60 multiple-choice questions. Fill in only the ovals for numbers 1 through 60 on your answer sheet.

Indicate all of your answers to the multiple-choice questions on the answer sheet. No credit will be given for anything written in this exam booklet, but you may use the booklet for notes or scratch work. After you have decided which of the suggested answers is best, completely fill in the corresponding oval on the answer sheet. Give only one answer to each question. If you change an answer, be sure that the previous mark is erased completely. Here is a sample question and answer.

Sample Question Sample Answer

Chicago is a A B C D E

- (A) state
- (B) city
- (C) country
- (D) continent
- (E) village

Use your time effectively, working as quickly as you can without losing accuracy. Do not spend too much time on any one question. Go on to other questions and come back to the ones you have not answered if you have time. It is not expected that everyone will know the answers to all of the multiple-choice questions.

About Guessing

Many students wonder whether or not to guess the answers to questions about which they are not certain. In this section of the exam, as a correction for random guessing, one-fourth of the number of questions you answer incorrectly will be subtracted from the number of questions you answer correctly. If you are not sure of the best answer but have some knowledge of the question and are able to eliminate one or more of the answer choices, your chance of answering correctly is improved, and it may be to your advantage to answer such a question.



Minimum 20% post-consumer waste

Section I

The inclusion of source material in this exam is not intended as an endorsement by the College Board or ETS of the content, ideas, or values expressed in the material. The material has been selected by the economics faculty who serve on the AP Economics Development Committee. In their judgment, the material printed here reflects various aspects of the course of study on which this exam is based and is therefore appropriate to use to measure the skills and knowledge of this course.

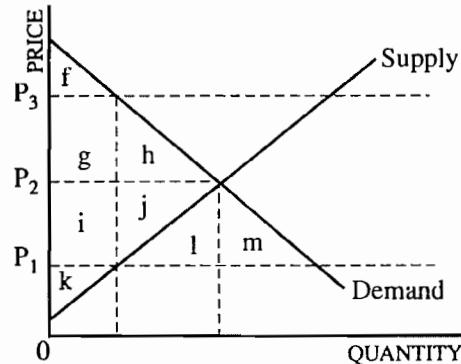
MICROECONOMICS**Section I****Time—70 minutes****60 Questions**

Directions: Each of the questions or incomplete statements below is followed by five suggested answers or completions. Select the one that is best in each case and then fill in the corresponding oval on the answer sheet.

1. Opportunity cost is defined as
 - (A) excess demand for a good
 - (B) unlimited resources and unlimited wants
 - (C) a comparative advantage in the production of a good
 - (D) the value of the next best alternative that is forgone when an activity is pursued
 - (E) the value of all other possible alternatives that are forgone when an activity is pursued

2. The fundamental difference between a market economy and a command economy lies in which of the following?
 - (A) Property rights and protection of private property
 - (B) Absolute and comparative advantages
 - (C) Specialization and trade
 - (D) Taxes and subsidies
 - (E) Positive and negative externalities

Questions 3-4 refer to the diagram below. The letters on the graph represent enclosed areas.



3. When the market is in equilibrium, the total economic surplus is equal to area
 - (A) f + k
 - (B) f + g + i + k
 - (C) g + h + i + j
 - (D) f + g + h + i + j + k
 - (E) f + g + h + i + j + k + l + m

4. If a price ceiling is set at P_1 , which of the following areas represent the resulting consumer surplus, producer surplus, and deadweight loss?
 - (A) Consumer Surplus: f; Producer Surplus: k; Deadweight Loss: l + m
 - (B) Consumer Surplus: f + g + h; Producer Surplus: k + l; Deadweight Loss: h + j
 - (C) Consumer Surplus: f + g + h; Producer Surplus: i + j + k; Deadweight Loss: l + m
 - (D) Consumer Surplus: f + g + i; Producer Surplus: k; Deadweight Loss: h + j
 - (E) Consumer Surplus: f + g + i; Producer Surplus: h + j; Deadweight Loss: l + m

Section I

5. A change in which of the following will cause a change in the supply of personal computers (PC's) in the short run?
- (A) Technology
(B) Demand for PC's
(C) Price of disks, which are a complement to PC's
(D) Price of PC's
(E) Consumers' incomes
6. Following a decrease in the supply of oranges, the price of orange juice increased by 20 percent, which resulted in a 10 percent increase in the quantity of apple juice consumed. This implies that the cross elasticity of demand between orange juice and apple juice is
- (A) 0
(B) 0.5
(C) 1
(D) 2
(E) indeterminate
7. F&D Manufacturing Company increases all its inputs by 50 percent each. If F&D's output increases by 100 percent, then F&D is experiencing
- (A) increasing returns to scale
(B) constant returns to scale
(C) diseconomies of scale
(D) increasing marginal cost
(E) decreasing profits
8. At 100 units of a firm's output, average total cost is \$10, average variable cost is \$8, average fixed cost is \$2, and marginal cost is \$12. How will each of the following change as the firm's output further increases?

Average Total Cost	Average Variable Cost	Average Fixed Cost
(A) Increase	Increase	Increase
(B) Increase	Increase	Decrease
(C) Increase	Decrease	Decrease
(D) Decrease	Increase	Increase
(E) Decrease	Decrease	Decrease

9. Which of the following is true for a perfectly competitive firm in long-run equilibrium?

- (A) It earns positive economic profit.
(B) It is allocatively efficient.
(C) It experiences economic losses.
(D) It is productively inefficient.
(E) It maximizes revenues.

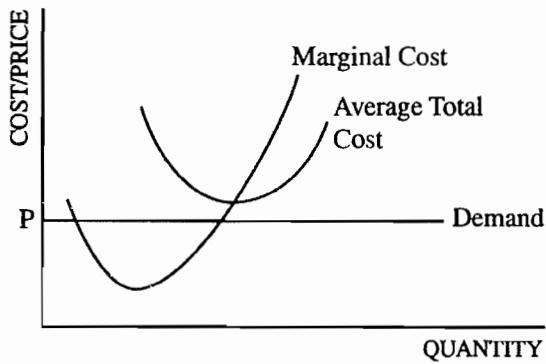
10. At the current output level, a firm finds that it has the potential to increase its profit by expanding output. If P = price, MR = marginal revenue, and MC = marginal cost, which of the following must hold at the current output for this firm?

- (A) $P = MR < MC$
(B) $P = MR = MC$
(C) $MR = MC$
(D) $MR > MC$
(E) $MR < MC$

11. Which of the following is the best example of the free-rider problem?

- (A) A company gives away free samples of a new product.
(B) A single firm is the sole supplier of corn oil.
(C) There are economies of scale in the production of passenger elevators.
(D) It is difficult to exclude those who do not pay for a good from enjoying the benefits of the good.
(E) There is free entry and exit into production of toothpaste, but products are not homogeneous.

Question 12 refers to the graph below, which shows the demand and cost curves for a profit-maximizing firm.

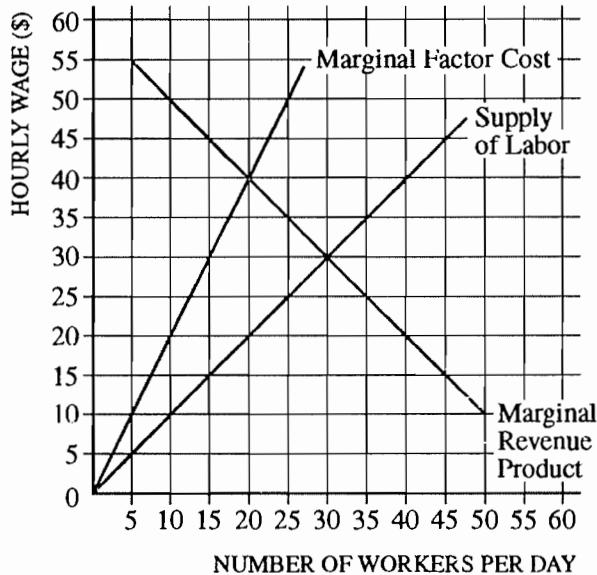


12. Which of the following statements best describes the graph?

- (A) Economic losses are incurred, and the firm will increase price until no losses are incurred.
- (B) Economic losses are incurred, and exit of firms from the market will cause prices to increase in the long run.
- (C) Economic profits are earned, and costs will increase until no profits are earned.
- (D) Economic profits are earned, and entry of firms into the market will cause prices to decrease in the long run.
- (E) Economic profits are earned, and neither exit nor entry of firms will occur in the long run.

13. If the three largest widget producers control 85 percent of the total widget market, then these producers are operating in

- (A) an oligopoly
- (B) monopolistic competition
- (C) perfect competition
- (D) a monopoly
- (E) a cartel



14. The graph above shows a monopsony labor market. In the absence of any regulations, which of the following represents the number of workers the firm will hire and the wage rate it will offer to those workers?

<u>Number of Workers</u>	<u>Wage Rate</u>
(A) 15	\$30
(B) 20	\$20
(C) 20	\$40
(D) 30	\$30
(E) 40	\$40

15. To correct for positive externalities, the government should

- (A) do nothing, since no harm is done by positive externalities
- (B) levy a tax on the output of the good or service
- (C) pay a subsidy equal to the marginal external benefit
- (D) impose a price ceiling on the good to discourage its production
- (E) impose a price floor on the good at which the marginal private benefit equals the marginal social cost

Section I

16. Carlos has a van with 20 seats and charges \$10 per person per ride to the airport from downtown. Carlos' cost of the trip is \$140 for any number of passengers. On one trip, Carlos has 19 seats filled when a person offers him \$5 for the last seat. Should Carlos accept the offer?
- (A) No, since the \$5 fare offered is below his average cost of \$7.
(B) No, since the average variable cost is greater than \$5.
(C) No, since it is illegal to charge different prices for the same service.
(D) Yes, since the marginal benefit exceeds the marginal cost.
(E) Yes, since his total revenue exceeds his total cost by \$5.
17. A decrease in raw material prices will change the equilibrium price and quantity in a market in which of the following ways?
- | <u>Price</u> | <u>Quantity</u> |
|---------------|-----------------|
| (A) Increase | Increase |
| (B) Increase | Decrease |
| (C) Decrease | Increase |
| (D) Decrease | Decrease |
| (E) No change | Increase |
18. A monopolist produces two unrelated goods, X and Y. The demand for X is currently price elastic and the demand for Y is currently price inelastic. To increase its total revenue, the firm should change the price of X and Y in which of the following ways?
- | <u>Price of X</u> | <u>Price of Y</u> |
|-------------------|-------------------|
| (A) Increase | No change |
| (B) Increase | Decrease |
| (C) Increase | Increase |
| (D) Decrease | Increase |
| (E) Decrease | Decrease |
19. In microeconomics, the short run is defined as which of the following?
- (A) A period that is less than one year
(B) A period that is between one year and four years
(C) A period that is too short for a firm to be able to change its level of output
(D) A period during which some inputs in a firm's production process cannot be changed
(E) A period during which a firm's fixed costs exceed its variable costs

Questions 20-21 are based on the information below, which shows the marginal utilities a student receives from the consumption of pizza and pens. Assume that the marginal utility of each good is independent of the quantity of the other good consumed.

Units of Pizza	Marginal Utility of Pizza	Units of Pens	Marginal Utility of Pens
1	20	1	8
2	18	2	7
3	16	3	6
4	14	4	5
5	12	5	4
6	10	6	3
7	9	7	2
8	8	8	1

20. The student has \$10 and spends it all on pizza and pens. If the price of a unit of pizza is \$2 and the price of a unit of pens is \$1, the student will maximize utility by purchasing which of the following combinations of pizzas and pens?

Pizzas Pens

- (A) 5 3
- (B) 4 2
- (C) 3 4
- (D) 3 1
- (E) 2 6

21. If the student purchases 2 units of pizza and 2 units of pens, the student's total utility will be

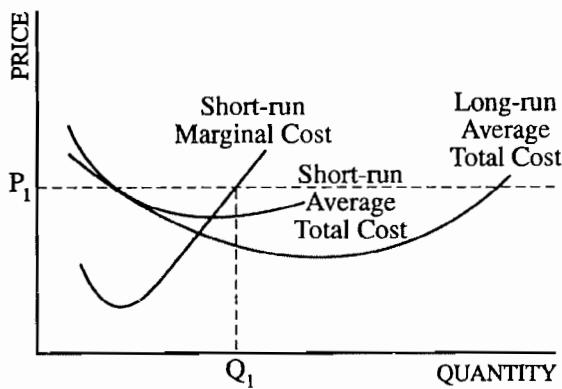
- (A) 4 utils
- (B) 25 utils
- (C) 28 utils
- (D) 50 utils
- (E) 53 utils

22. After the government imposed a \$0.20 per gallon tax on gasoline, the price of a gallon of gasoline increased from \$1.00 to \$1.15. Which of the following statements is true?

- (A) Consumers bear the entire burden of the tax, since producers can pass the tax along to consumers.
- (B) Consumers and producers share the tax burden equally.
- (C) Consumers bear most, but not all, of the tax burden.
- (D) Producers bear the entire burden of the tax, since the tax was levied on producers, not consumers.
- (E) There is no tax burden, since gasoline is a normal good.

Section I

Questions 23-24 refer to the graph below, which shows the cost curves of a firm.



23. If the firm produces Q_1 units of output with two inputs, the firm will be experiencing which of the following in the short run and in the long run?

Short Run

- (A) Increasing marginal returns
- (B) Increasing marginal returns
- (C) Diminishing marginal returns
- (D) Diminishing marginal returns
- (E) Constant marginal returns

Long Run

- Economies of scale
- Diseconomies of scale
- Economies of scale
- Diseconomies of scale
- Diseconomies of scale

24. Which of the following will be true if the firm is in a perfectly competitive market and the price is P_1 ?

- (A) The firm will earn short-run profits but suffer long-run losses.
- (B) In the long run, existing firms in the industry will produce an output level greater than Q_1 .
- (C) In the long run, existing firms will leave the industry.
- (D) Firms will leave the industry until profits are increased.
- (E) New firms will be dissuaded from entering the industry, at least until the price increases.

25. A perfectly competitive firm is currently in long-run equilibrium. Its total revenue is \$100,000, and the average total cost of production is \$100. Which of the following can be concluded from this information?

- (A) The firm's marginal cost is \$1,000, and its profit is positive.
- (B) The firm's marginal cost is \$1,000, and its profit is zero.
- (C) The firm's output is 1,000 units, and its profit is negative.
- (D) The firm's output is 1,000 units, and its profit is zero.
- (E) The firm's output is 1,000 units, and its profit is positive.

26. Game theory is a useful model to explain the behavior of firms in a market when the firms are

- (A) independent of one another
- (B) price takers
- (C) regulated by government
- (D) altruistic
- (E) interdependent

27. Motivated by lower import prices, United States manufacturers increase their imports of steel from other steel-producing countries. Which of the following best describes the impact of the increased steel imports on the labor market for steelworkers in the United States?

- (A) Jobs in the United States steel industry will become less attractive, so wages will have to increase in this market to attract more workers to the United States steel industry.
- (B) Domestic steel prices will fall, leading to an increase in sales of domestically produced steel, which increases demand and employment of steelworkers.
- (C) The supply of steelworkers will increase, lowering the steelworker wage in the United States.
- (D) The supply of steelworkers will decrease, increasing the steelworker wage in the United States.
- (E) The demand for United States steelworkers will decline, putting downward pressure on steelworker wages.

28. When labor supply in a competitive labor market increases, the equilibrium wage rate and employment will change in which of the following ways?

<u>Wage Rate</u>	<u>Employment</u>
------------------	-------------------

- | | |
|--------------|-----------|
| (A) Increase | Increase |
| (B) Increase | Decrease |
| (C) Decrease | Increase |
| (D) Decrease | Decrease |
| (E) Decrease | No change |

29. Which of the following would create a positive externality?

- (A) Congestion on city highways
- (B) Water pollution
- (C) A neighbor's loud music that wakes you up
- (D) Flu vaccination
- (E) The greenhouse effect and global warming

30. If government regulators set price such that a natural monopolist earns only normal profits, price will be set equal to

- (A) marginal revenue
- (B) marginal cost
- (C) average total cost
- (D) average revenue
- (E) average variable cost

31. A farmer in Country A can harvest 20 bushels of wheat or 10 bushels of corn in a day, while a farmer in Country B can harvest 8 bushels of wheat or 8 bushels of corn in a day. If Country A and Country B specialize and trade, Country A will

- (A) export wheat and import corn
- (B) export corn and import wheat
- (C) export both wheat and corn
- (D) import both wheat and corn
- (E) benefit more from trade than will Country B

Section I

32. Which of the following changes in the demand for and the supply of a good will necessarily result in an increase in both the equilibrium price and quantity of the good in a market?

<u>Demand</u>	<u>Supply</u>
(A) Increase	Increase
(B) Increase	No change
(C) No change	Increase
(D) Decrease	Increase
(E) No change	Decrease

33. The additional satisfaction received from consuming an additional unit of a good is called the
- (A) marginal utility
 - (B) marginal product
 - (C) average product
 - (D) average utility
 - (E) total utility

34. Assume that apple juice and grape juice are substitutes. Which of the following will cause an increase in the quantity of apple juice supplied?
- (A) A decrease in subsidies to apple juice producers
 - (B) A decrease in the price of grape juice
 - (C) An increase in the price of apple juice
 - (D) An increase in the price of insecticides used on apple trees
 - (E) The imposition of a price ceiling in the market for apple juice

35. The long-run average cost curve will be sloping downward if a firm experiences
- (A) diminishing marginal returns
 - (B) decreasing returns to scale
 - (C) constant returns to scale
 - (D) diseconomies of scale
 - (E) economies of scale

36. A decrease in the supply of oranges raised the price of oranges in the market. The substitution effect of the price increase will motivate consumers to

- (A) raise their real income to offset the price effect
- (B) decrease their demand for oranges
- (C) demand that the government set a price ceiling for oranges
- (D) increase the quantity of other fruits demanded and decrease the quantity of oranges demanded
- (E) decrease the quantity of other fruits demanded and increase the quantity of oranges demanded

<u>Units of Labor Input</u>	<u>Units of Output</u>
1	8
2	20
3	30

37. The table above shows the amount of labor inputs necessary to produce given levels of output. If the cost of a unit of labor is \$20 and total fixed cost is \$100, the average total cost of producing 20 units of output is

- (A) \$1
- (B) \$2
- (C) \$7
- (D) \$40
- (E) \$120

38. Assume that a profit-maximizing monopoly is charging a single price. If the monopoly can price discriminate and charge each consumer what he or she is willing to pay, which of the following will occur?
- (A) The quantity of output produced will increase.
 - (B) Total cost will decrease.
 - (C) Economic profit will decrease.
 - (D) Consumer surplus will increase.
 - (E) Demand will decrease.

		TARA'S PRICE POLICY	
		High	Low
PAM'S PRICE POLICY	High	\$40, \$40	\$20, \$70
	Low	\$70, \$20	\$30, \$30

39. Pam and Tara run two competing lemonade stands in a town. In the payoff matrix above, the first entry in each cell shows the profits to Pam, and the second entry in each cell shows the profits to Tara. According to the information, which of the following is true?

- (A) If Pam sets the high price, Tara will do best by charging the low price.
- (B) If Pam sets the low price, Tara will do best by charging the high price.
- (C) The dominant strategy for both is to charge the high price.
- (D) The dominant strategy for Tara is to set the low price and for Pam is to set the high price.
- (E) Neither Tara nor Pam has a dominant strategy.

40. Which of the following statements is true for both a monopolistically competitive firm and a perfectly competitive firm in long-run profit-maximizing equilibrium?

- (A) Economic profits equal zero, and price equals marginal cost.
- (B) Economic profits equal zero, and price equals marginal revenue.
- (C) Marginal revenue equals marginal cost, and profits are positive.
- (D) Economic profits equal zero, and marginal revenue equals marginal cost.
- (E) Economic profits equal zero, and price exceeds marginal cost.

41. A well-known fast-food franchise substantially increases the price of its hamburgers, and loses only some of its customers. Which of the following best explains why the franchise has not lost all of its customers?

- (A) Its hamburgers are a perfect substitute for other types of fast food.
- (B) Its hamburgers are differentiated.
- (C) The demand for its hamburgers is perfectly elastic.
- (D) The other competitive fast-food restaurants decrease the price for their hamburgers.
- (E) The barriers to entry are very low for entrepreneurs trying to enter the fast-food business.

42. If a single firm can produce and supply an entire market at a lower unit cost than many small firms can, the long-run average total cost must be

- (A) increasing as firm size increases
- (B) remaining constant as firm size increases
- (C) decreasing as the firm's output increases
- (D) inelastic due to specialization
- (E) constant and equal to marginal cost

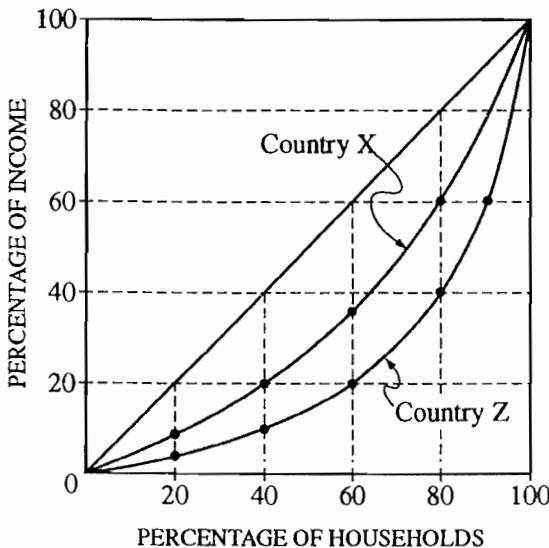
43. An increase in the demand for automobiles will cause the demand for skilled automobile workers and the wage rate of skilled automobile workers to change in which of the following ways?

Demand For Workers	Wage Rate
(A) Decrease	Increase
(B) Decrease	Not change
(C) Increase	Decrease
(D) Increase	Increase
(E) Not Change	Increase

44. Under an efficient policy to address the problem of pollution created from manufacturing good X, which of the following is true?

- (A) Pollution is completely eliminated.
- (B) The marginal private cost of producing good X exceeds the marginal revenue from its sale.
- (C) The marginal private cost of producing good X equals the marginal revenue from its sale.
- (D) The marginal social benefit of pollution reduction exceeds the marginal social cost of pollution reduction.
- (E) The marginal social benefit of pollution reduction equals the marginal social cost of pollution reduction.

Section I



45. Based on the information in the Lorenz curve above, which of the following is true?
- People in Country X make more money than people in Country Z.
 - Income is more equally distributed in Country X than in Country Z.
 - The top 20 percent of households in Country X received 60 percent of the total income.
 - The top 20 percent of households in Country Z received 40 percent of the total income.
 - The average income in Country X is higher than the average income in Country Z.

46. The table below shows the total labor hours required to produce a unit of gold and the total labor hours required to produce a unit of sugar in Portugal and Spain, respectively.

	<u>Portugal</u>	<u>Spain</u>
Gold	1 hour	2 hours
Sugar	4 hours	3 hours

Which country has an absolute advantage in sugar production?

- Neither Spain nor Portugal, because both require fewer labor hours to produce a unit of gold than to produce a unit of sugar.
- Spain, because the opportunity cost of sugar in terms of gold is lower.
- Spain, because it requires fewer total labor hours than Portugal to produce a unit of sugar.
- Portugal, because it requires more total labor hours than Spain to produce a unit of sugar.
- Portugal, because it takes only a quarter of an hour to produce a unit of sugar.

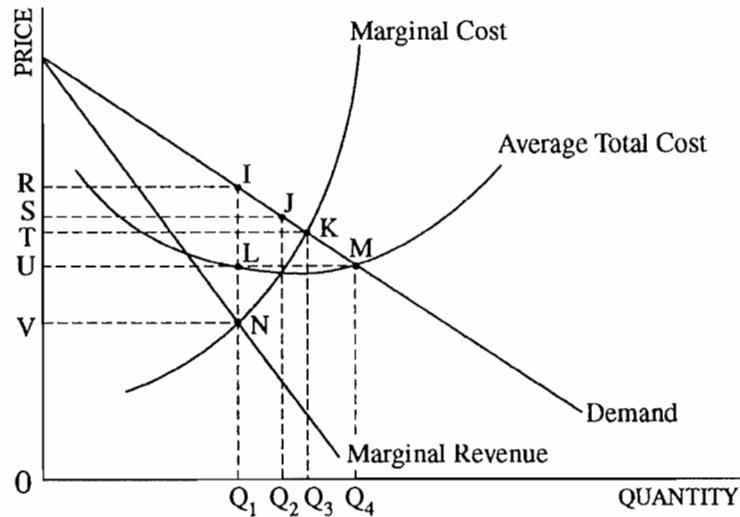
47. A production possibilities curve is bowed out, indicating increasing opportunity cost because of

- the law of demand
- the law of diminishing marginal utility
- the existence of unemployment
- differences in consumer tastes
- imperfect adaptability of resources to alternative uses

48. Assume that the demand for a certain good is perfectly inelastic and the supply curve of the good is upward sloping. Which of the following occurs in the market for the good if the price of an input used to produce the good increases?
- (A) A decrease in both the quantity supplied and the equilibrium amount consumed
(B) A decrease in the quantity supplied and an increase in the equilibrium price
(C) A decrease in the supply and an increase in the equilibrium price
(D) A decrease in both the demand and the equilibrium amount consumed
(E) A decrease in both the quantity demanded and the equilibrium price
49. An increase in which of the following will cause a firm's marginal cost curve to shift upward?
- (A) The price of a variable input
(B) The price of a fixed input
(C) The level of output
(D) Labor productivity
(E) The demand for the firm's product
50. Assume that a monopolist is producing in the inelastic portion of its demand curve. Which of the following will occur if the monopolist decreases its price?
- (A) Marginal revenue will decrease, but profits will increase.
(B) Marginal revenue will increase, but profits will decrease.
(C) Total revenue will decrease, but profits will increase.
(D) Both total revenue and profits will decrease.
(E) Both total revenue and profits will increase.
51. In the short run, a profit-maximizing firm should shut down if which of the following is true?
- (A) It is not making an economic profit.
(B) It is not making a normal profit.
(C) Its total revenue is less than its total cost.
(D) Its product price is less than its average variable cost.
(E) Its product price is greater than its average variable cost but less than its average total cost.
52. Beyond a certain level of output, the short-run marginal cost will rise because
- (A) there is no fixed input and costs will increase
(B) at least one input is fixed and eventually diminishing returns will occur
(C) the cost of the variable input increases when marginal product increases
(D) the demand for the good decreases when production is limited
(E) input prices increase when production increases and consumption is limited
53. An industry consists of 100 small firms, and the largest firm accounts for only 2 percent of sales. Brand names are considered a signal of quality. The industry described is best classified as
- (A) monopoly
(B) perfectly competitive
(C) monopolistically competitive
(D) oligopolistic
(E) monopsonistic

Section I

Questions 54-55 are based on the graph below, which shows the cost and revenue curves of a monopoly firm.



54. The economic profit of the profit-maximizing monopolist is given by the area

- (A) RSJI
- (B) R 0 Q_1 I
- (C) RULI
- (D) RVNI
- (E) U 0 Q_4 M

55. If this were a perfectly competitive industry with the same costs as shown on the graph, the equilibrium price and output would be which of the following?

<u>Price</u>	<u>Output</u>
(A) 0R	Q_1
(B) 0S	Q_2
(C) 0T	Q_3
(D) 0U	Q_1
(E) 0U	Q_4

56. A collusive agreement to fix prices among firms in an oligopolistic industry is most likely to be broken under which of the following conditions?
- (A) It is easy for new firms to enter into the industry.
(B) All of the firms have identical costs.
(C) The number of firms is few.
(D) Firms' sales are widely reported.
(E) The market demand is stable.
57. Assume that the last worker a firm hired produces 60 additional units of output per hour and the last machine rented produces 6,000 units of output per hour. A worker's hourly wage rate is \$12, and the rental cost of a machine is \$1,000 per hour. In order to minimize the cost of its current output, the firm should
- (A) do nothing, because the costs of production are minimized
(B) increase the use of labor and decrease the use of capital
(C) increase the use of capital and decrease the use of labor
(D) increase the use of labor and increase the use of capital
(E) decrease the use of labor and decrease the use of capital
58. A perfectly competitive profit-maximizing firm will continue to hire additional units of an input as long as the
- (A) marginal product of the input is maximized
(B) marginal cost of employing the input is maximized
(C) value of the marginal product of the input exceeds the price of the input
(D) revenue associated with the employment of the last unit of the input is maximized
(E) price of the product is greater than the marginal cost of the input
59. Which of the following is a government policy that is intended to address a market failure?
- (A) Taxing the use of toxic pesticides by farmers
(B) Fining firms that outsource jobs to lower labor costs
(C) Subsidizing corn farmers who face increasing production costs
(D) Taxing short-run profits in competitive markets
(E) Subsidizing entry of firms into a market with an existing natural monopoly
60. Public goods are typically provided by the government, because private markets tend to
- (A) produce them at higher cost
(B) produce less than the socially optimum quantity
(C) produce more than the socially optimum quantity
(D) charge a monopoly price that is greater than the marginal social cost
(E) charge a monopoly price that is less than the marginal social cost

Section I

END OF SECTION I

**IF YOU FINISH BEFORE TIME IS CALLED, YOU MAY
CHECK YOUR WORK ON THIS SECTION.**

DO NOT GO ON TO SECTION II UNTIL YOU ARE TOLD TO DO SO.

The Exam**AP® Microeconomics Exam****SECTION II: Free-Response Questions****2010****DO NOT BREAK THE SEAL ON THIS BOOKLET UNTIL YOU ARE TOLD TO DO SO.****At a Glance****Total Time**

1 hour

Number of Questions

3

Percent of Total Score

33.3%

Writing Instrument

Pen with black or dark blue ink

Reading Period**Time**

10 minutes. Use this time to read the questions and plan your answers.

Writing Period**Question 1****Suggested Time**

25 minutes

Percent of Section II Score

50%

Question 2**Suggested Time**

12.5 minutes

Percent of Section II Score

25%

Question 3**Suggested Time**

12.5 minutes

Percent of Section II Score

25%

IMPORTANT Identification Information**PLEASE PRINT WITH PEN:**

1. First two letters of your last name

First letter of your first name

2. Date of birth

<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
Month	Day	Year	

3. Six-digit school code

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4. Unless I check the box below, I grant the College Board the unlimited right to use, reproduce, and publish my free-response materials, both written and oral, for educational research and instructional purposes. My name and the name of my school will not be used in any way in connection with my free-response materials. I understand that I am free to mark "No" with no effect on my score or its reporting.

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Instructions

The questions for Section II are printed in the green insert. You may use the green insert to organize your answers and for scratch work, but you must write your answers in the pink Section II booklet. No credit will be given for any work written in the insert.

The proctor will announce the beginning and end of the reading period. You are advised to spend the 10-minute period reading the questions and planning your answers to the questions. Do NOT begin writing in the pink booklet until the proctor tells you to do so. You may not use colored pens or pencils in drawing graphs or diagrams.

Write clearly and legibly. Number each answer as the question is numbered in the exam. Begin the answer to each question on a new page. Do not skip lines. Cross out any errors you make; crossed-out work will not be scored.

Manage your time carefully. You may proceed freely from one question to the next. You may review your responses if you finish before the end of the exam is announced.



Section II**MICROECONOMICS****Section II****Planning time—10 minutes****Writing time—50 minutes**

Directions: You have 50 minutes to answer all three of the following questions. It is suggested that you spend approximately half your time on the first question and divide the remaining time equally between the next two questions. In answering the questions, you should emphasize the line of reasoning that generated your results; it is not enough to list the results of your analysis. Include correctly labeled diagrams, if useful or required, in explaining your answers. A correctly labeled diagram must have all axes and curves clearly labeled and must show directional changes. Use a pen with black or dark blue ink.

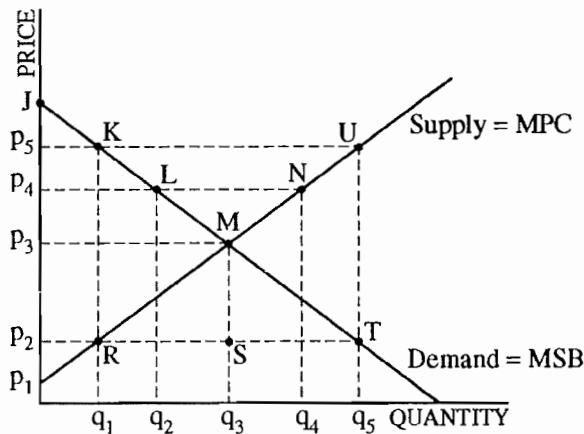
1. Assume that corn is produced in a perfectly competitive market. Farmer Roy is a typical producer of corn.
 - (a) Assume that Farmer Roy is making zero economic profit in the short run. Draw a correctly labeled side-by-side graph for the corn market and for Farmer Roy and show each of the following.
 - (i) The equilibrium price and quantity for the corn market, labeled as P_{M1} and Q_{M1} , respectively
 - (ii) The equilibrium quantity for Farmer Roy, labeled as Q_{F1}
 - (b) For Farmer Roy's corn, is the demand perfectly elastic, perfectly inelastic, relatively elastic, relatively inelastic, or unit elastic? Explain.
 - (c) Corn can be used as an input in the production of ethanol. The demand for ethanol has significantly increased.
 - (i) Show on your graph in part (a) the effect of the increase in demand for ethanol on the market price and quantity of corn in the short run, labeling the new equilibrium price and quantity as P_{M2} and Q_{M2} , respectively.
 - (ii) Show on your graph in part (a) the effect of the increase in demand for ethanol on Farmer Roy's quantity of corn in the short run, labeling the quantity as Q_{F2} .
 - (iii) How does the average total cost for Farmer Roy at Q_{F2} compare with P_{M2} ?
 - (d) Corn is also used as an input in the production of cereal. What is the effect of the increased demand for ethanol on the equilibrium price and quantity in the cereal market in the short run? Explain.

GO ON TO THE NEXT PAGE.

2. The John Lamb Company, a profit-maximizing firm producing widgets, is in a perfectly competitive widget market. Assume John Lamb employs a fixed number of employees and rents a machine for a variable number of hours from a perfectly competitive market.
- (a) Using correctly labeled side-by-side graphs of the factor market for machines and the John Lamb Company, show each of the following.
- (i) The equilibrium rental price of machines in the factor market, labeled as P_R
 - (ii) John Lamb's equilibrium rental quantity of machines, labeled as Q_L
- (b) Assume that the popularity of widgets declines, decreasing the demand for widgets. What will happen to each of the following?
- (i) Marginal product curve for machine-hours
 - (ii) Marginal revenue product curve for machine-hours. Explain.
- (c) John Lamb is employing the cost-minimizing combination of inputs. The marginal product of labor is 28 widgets per worker hour and the wage rate is \$14 per hour. The marginal product of the machine is 60 widgets per machine-hour. What is the hourly rental price of a machine?

GO ON TO THE NEXT PAGE.

Section II



3. The graph above shows the perfectly competitive market for hard candies in Country Alpha. In the graph the letters correspond to points, not areas. MPC denotes marginal private cost and MSB denotes marginal social benefit.
- Using the labeling on the graph, identify the area representing each of the following at the market equilibrium.
 - The consumer surplus
 - The producer surplus
 - Assume that the production of each unit of candy creates a negative externality equal to $(p_5 - p_2)$. Using the labeling on the graph, identify the socially optimal quantity.
 - Assume that the government imposes a per-unit tax of $(p_5 - p_2)$ to correct for the negative externality. Using the labeling on the graph, identify the area representing each of the following.
 - The consumer surplus
 - The deadweight loss

STOP

END OF EXAM

Chapter III: Answers to the 2010 AP Microeconomics Exam

- Section I: Multiple Choice
 - Section I Answer Key and Percent Answering Correctly
 - Analyzing Your Students' Performance on the Multiple-Choice Section
 - Diagnostic Guide for the 2010 AP Microeconomics Exam
- Section II: Free Response
 - Comments from the Chief Reader
 - Scoring Guidelines, Sample Student Responses and Commentary

Section I: Multiple Choice

Listed below are the correct answers to the multiple-choice questions, the percent of AP students who answered each question correctly by AP score, and the total percent answering correctly.

Section I Answer Key and Percent Answering Correctly

Item No.	Correct Answer	Percent Correct by Score					Total Percent Correct
		5	4	3	2	1	
1	D	79	63	52	47	37	55
2	A	83	68	54	44	31	55
3	D	99	95	87	77	53	82
4	D	91	74	57	43	24	57
5	A	87	79	70	56	30	64
6	B	81	64	54	49	37	56
7	A	95	85	73	63	42	71
8	B	90	63	40	26	22	47
9	B	94	84	70	55	35	67
10	D	87	61	42	35	27	49
11	D	98	95	89	80	58	83
12	B	98	88	69	50	28	66
13	A	95	87	76	67	45	73
14	B	70	40	21	11	10	29
15	C	89	66	43	27	17	47
16	D	81	68	65	63	52	65
17	C	93	84	73	62	41	70
18	D	94	88	79	65	39	72
19	D	84	64	46	33	20	48
20	B	90	72	52	40	25	55
21	E	91	70	47	29	10	48
22	C	97	91	85	78	55	80
23	C	76	43	25	18	18	35
24	B	75	51	33	23	20	40
25	D	94	81	61	46	22	60

Item No.	Correct Answer	Percent Correct by Score					Total Percent Correct
		5	4	3	2	1	
26	E	92	83	73	61	34	68
27	E	88	76	63	55	32	62
28	C	90	78	69	61	44	68
29	D	100	98	95	90	71	90
30	C	82	61	47	35	26	49
31	A	95	88	78	68	44	74
32	B	98	91	79	61	30	71
33	A	100	100	98	94	65	90
34	C	73	46	30	21	16	36
35	E	94	75	49	29	11	51
36	D	93	89	83	77	50	78
37	C	94	74	47	29	15	51
38	A	82	59	43	35	22	47
39	A	94	82	67	51	28	64
40	D	84	67	55	42	21	53
41	B	95	86	72	58	31	68
42	C	89	66	45	35	20	50
43	D	98	91	82	75	52	79
44	E	84	63	45	32	19	48
45	B	95	79	57	41	22	58
46	C	91	77	67	59	48	68
47	E	86	63	42	26	13	45
48	C	92	72	51	34	21	53
49	A	88	65	47	37	22	50
50	D	79	64	50	39	21	50

continued on the next page

Section I Answer Key and Percent Answering Correctly (continued)

Item No.	Correct Answer	Percent Correct by Score					Total Percent Correct
		5	4	3	2	1	
51	D	96	88	72	49	19	64
52	B	75	57	43	34	20	45
53	C	94	75	52	35	21	55
54	C	90	79	67	52	31	63
55	C	78	60	49	42	32	51

Item No.	Correct Answer	Percent Correct by Score					Total Percent Correct
		5	4	3	2	1	
56	A	57	41	34	31	25	37
57	C	80	64	53	46	31	54
58	C	66	49	38	33	24	41
59	A	57	25	12	7	8	20
60	B	85	64	44	30	16	47

Analyzing Your Students' Performance on the Multiple-Choice Section

If you give your students the 2010 exam for practice, you may want to analyze the results to find overall strengths and weaknesses in their understanding of AP Microeconomics.

The following diagnostic worksheet will help you do this. You are permitted to photocopy and distribute it to your students for completion.

1. In each section, students should insert a check mark for each correct answer.
2. Add together the total number of correct answers for each section.

3. To compare the student's number of correct answers for each section with the average number correct for that section, copy the number of correct answers to the "Number Correct" table at the end of the Diagnostic Guide.

In addition, under each item, the percent of AP students who answered correctly is shown, so students can analyze their performance on individual items. This information will be helpful in deciding how students should plan their study time. Please note that one item may appear in several different categories, as questions can cross over different topics.

Diagnostic Guide for the 2010 AP Microeconomics Exam

Basic Concepts (Average number correct = 3.6)

Question #	1	2	16	31	46	47
Correct/Incorrect						
Percent of Students Answering Correctly	55	55	65	74	68	45

Supply and Demand (Average number correct = 6.4)

Question #	3	4	5	6	17	18	22	32	34	48
Correct/Incorrect										
Percent of Students Answering Correctly	82	57	64	56	70	72	80	71	36	53

Production and Costs (Average number correct = 4.0)

Question #	7	8	19	23	35	37	49	52
Correct/Incorrect								
Percent of Students Answering Correctly	71	47	48	35	51	51	50	45

Firm Behavior and Market Structure (Average number correct = 10.2)

Question #	9	10	12	13	24	25	26	38	39	40	41	42	50	51	53	54	55	56
Correct/Incorrect																		
Percent of Students Answering Correctly	67	49	66	73	40	60	68	47	64	53	68	50	50	64	55	63	51	37

Market Failure and Public Policy (Average number correct = 3.6)

Question #	11	15	29	30	44	45	59	60
Correct/Incorrect								
Percent of Students Answering Correctly	83	47	90	49	48	58	20	47

Factor Markets (Average number correct = 3.0)

Question #	14	27	28	43	57	58
Correct/Incorrect						
Percent of Students Answering Correctly	29	62	68	79	54	41

Diagnostic Guide for the 2010 AP Microeconomics Exam (continued)

Theory of Consumer Choice (Average number correct = 2.7)

Question #	20	21	33	36
Correct/Incorrect				
Percent of Students Answering Correctly	55	48	90	78

Number Correct

	Basic Concepts	Supply and Demand	Production and Costs	Firm Behavior and Market Structure	Market Failure and Public Policy	Factor Markets	Theory of Consumer Choice
Number of Questions	6	10	8	18	8	6	4
Average Number Correct	3.6 (60.0%)	6.4 (64.0%)	4.0 (50.0%)	10.2 (56.7%)	3.6 (45.0%)	3.0 (50.0%)	2.7 (67.5%)
My Number Correct							

Section II: Free Response

Comments from the Chief Reader

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The free-response section of the 2010 AP Microeconomics Exam consists of three questions (two short-answer and one long-answer question) and comprises one third of the total composite score.

Scoring Guidelines, Sample Student Responses and Commentary

The answers presented on the following pages are actual student responses to the free-response questions on the 2010 AP Microeconomics Exam. The students gave permission to have their work reproduced at the time they took the exam. These responses were read and scored by the Table Leaders and Readers assigned to each particular question during the AP Reading in June 2010. The actual scores that these student responses earned, as well as a brief explanation of why, are indicated.

Question 1 — Overview

This question tested students' ability to draw and work with a model of perfect competition. Part (a) asked students to draw the graphs for a competitive market and a representative firm. Part (b) assessed students' understanding of the elasticity of demand for a competitive firm. Part (c) asked students to follow the repercussions of an increase in demand. Part (d) tested for an understanding of how product markets with common inputs affect each other.

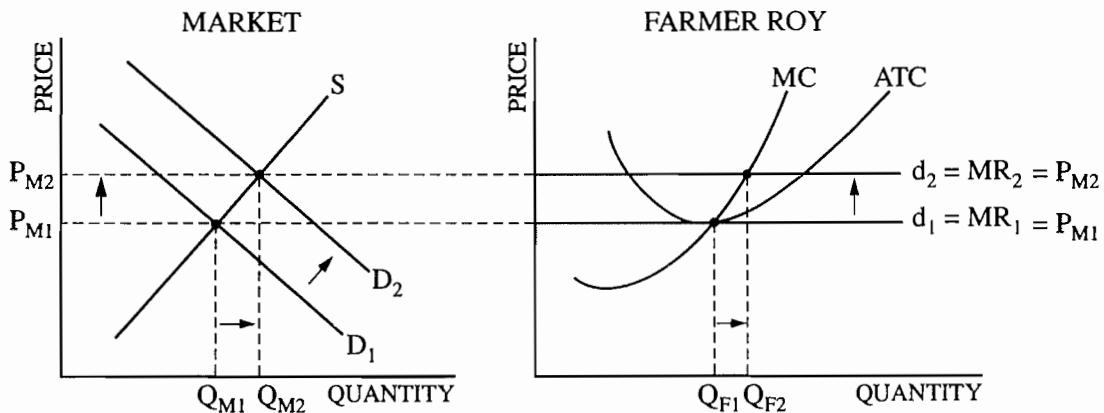
The mean score on this question was 6.02, more than 60 percent of the maximum possible score of 10 points. Students did well drawing the market graph, finding the firm's quantity, and shifting the market demand curve. Students did not do well explaining the elasticity of the firm's demand curve or comparing average total cost with price after the increase in demand.

It was common for students to omit explanations that perfectly competitive firms are price takers or that they can sell all that they want at the market price. There were also many erroneous or incomplete explanations for the link between demand for corn in the ethanol market and price and quantity in the cereal market.

Emphasis on drawing graphs neatly and accurately is paying off in terms of improved scores on problems such as this. Teachers should stress the importance of specific, correct labels on all lines and axes. Also, many points are missed due to inadequate explanations. Students should focus on clearly and completely explaining the concepts or relationships required, without too much superfluous information. It is critical to explain every step in a chain of events between cause and effect, and it is surprisingly common for long answers to fail to answer the question.

Scoring Guidelines for Question 1

10 points (4 + 1 + 4 + 1)



(a) 4 points:

- One point is earned for a correctly labeled graph of the corn market (S , D , P_{M1} , Q_{M1}).
- One point is earned for the graph of the firm with a horizontal demand curve at P_{M1} .
- One point is earned for showing the profit-maximizing quantity, Q_{F1} , at $MC = MR$.
- One point is earned for showing minimum ATC on the horizontal demand curve at Q_{F1} .

(b) 1 point:

- One point is earned for stating that the demand curve for Farmer Roy's corn is perfectly elastic because Farmer Roy is a price taker or because he can sell all that he wants at the market price.

(c) 4 points:

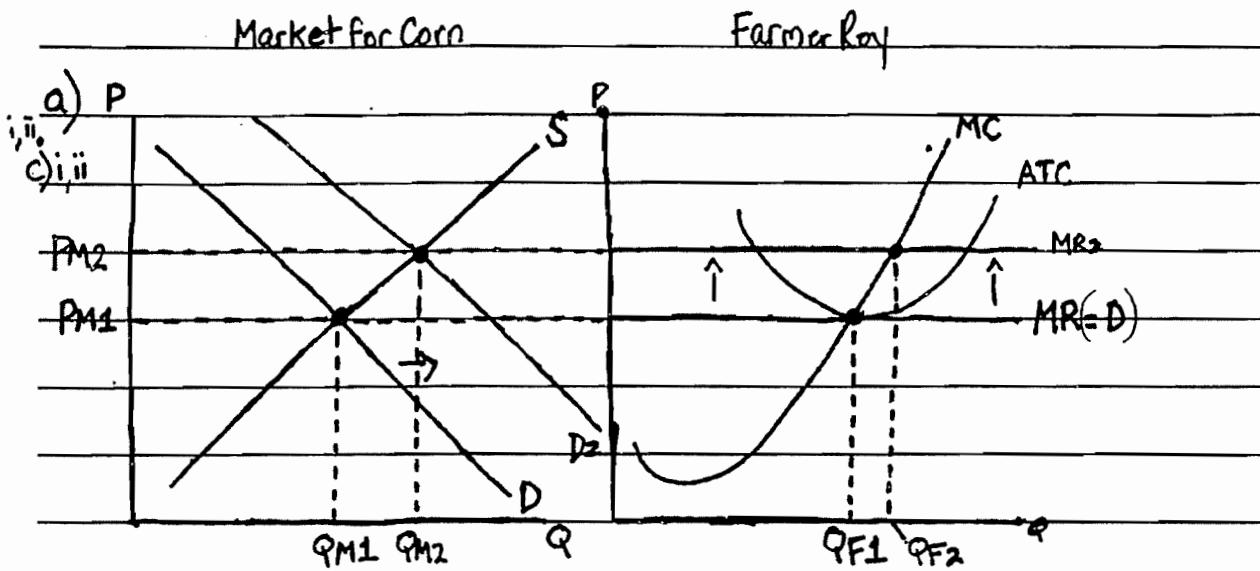
- One point is earned for shifting the market demand curve to the right and showing P_{M2} and Q_{M2} .
- One point is earned for shifting the firm's demand curve upward to the level of P_{M2} .
- One point is earned for showing the profit-maximizing quantity, Q_{F2} , at $MC = \text{new } MR$.
- One point is earned for stating that ATC at Q_{F2} is lower than P_{M2} .

(d) 1 point:

- One point is earned for stating that the equilibrium quantity will decrease and the equilibrium price will increase, because the increase in the price of corn causes a decrease in the supply of cereal.

Sample Student Responses for Question 1

Student Response 1 (Score: 9)



b) The demand for Farmer Roy's corn is perfectly elastic. Firms in perfect competition are price takers and have many substitutes. This is indicated by the horizontal MR line, and MR is equal to demand. The slightest shift in the price would lead to a massive decrease in total revenue, so firms in this industry all have perfectly elastic demand.

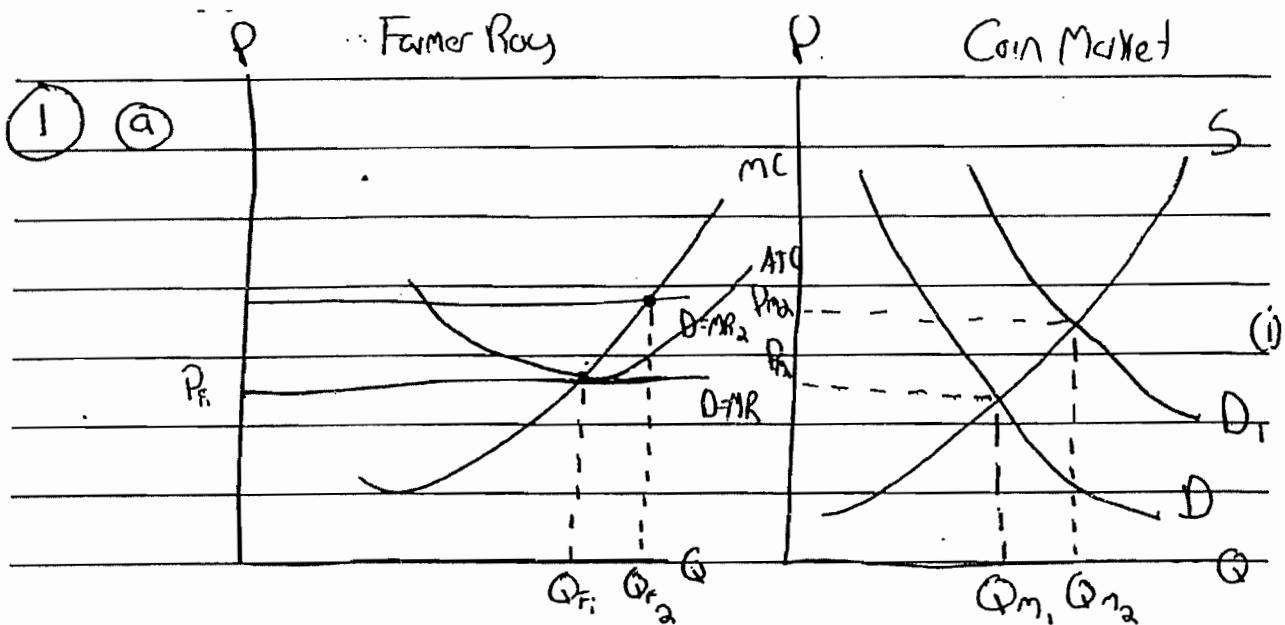
cii) The average total cost for Farmer Roy at QF_2 is lower than the price at Pm_2 .

d) The effect of the increase demand for ethanol leads to a higher equilibrium price and quantity in the cereal market in the short run. The demand for corn increases, and because corn is an input in production of cereal, the equilibrium price and quantity will increase in the short run.

Commentary

The student answers all parts of the question correctly except part (d) and lost 1 point for incorrectly asserting that the equilibrium quantity in the cereal market increases.

Student Response 2 (Score: 6)



(b) Corn is relatively elastic due to its ~~ability to change~~ tendency to have demand change based on price down the entire demand curve.

(c) →

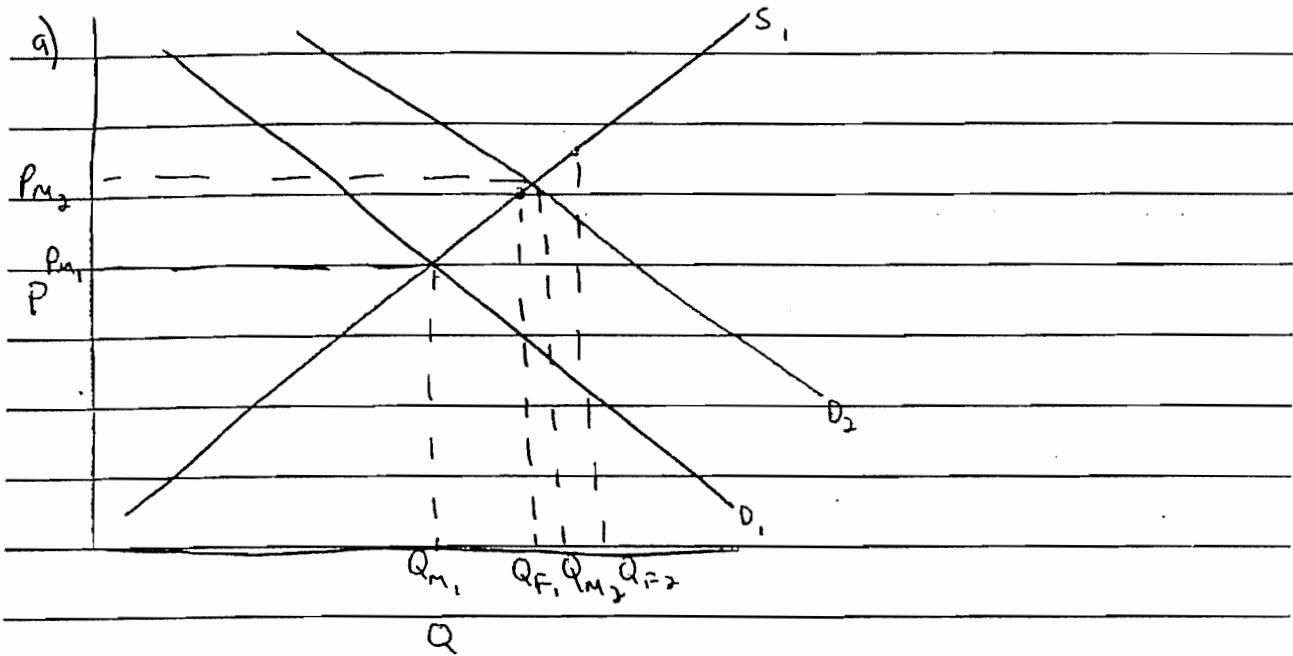
(iii) - It's going to go up slightly, but it is a barely noticeable raise in ATC.

(d) Price will rise and the quantity will decrease due to the increased demand for ethanol, causing firms to be allocatively efficient and thus committing more resources to ethanol production rather than cereal.

Commentary

The student lost 1 point in part (a) for failing to show a connection or linkage between the market price and Farmer Roy's demand curve for corn. The student lost 1 point in part (b) for an incorrect response. The student lost 1 point in part (c) (ii) for failing to show a connection between the new market price and the firm's new demand curve. The student also lost 1 point in part (c) (iii).

Student Response 3 (Score: 2)



b) relatively elastic because however much the price of corn increases or decreases or how the demand changes, he will still continue to produce corn because it is his source of income.

ciii) ATC for Farmer Roy at Q_{F_2} is above the P_{m_2} because he charges more to have marginal revenue.

d) because of the increased demand for ethanol, the equilibrium P and Q for the cereal market decreases because although the demand doesn't change, the supply decreases due to more corn going to the ethanol industry, thus lowering the cereal market's equilibrium.

Commentary

In part (a) (i) the student earned 1 point for a properly drawn and labeled supply and demand diagram for the market. The student also earned 1 point in (c) (i) for correctly shifting the demand curve to the right, increasing the equilibrium quantity and equilibrium price.

Question 2 — Overview

This question assessed students' proficiency with a factor-market model. Part (a) asked students to draw the graphs for a factor market and a representative buyer. Part (b) tested for familiarity with the concepts of marginal product and marginal revenue product. Part (c) assessed students' understanding of the conditions for the cost-minimizing combination of inputs.

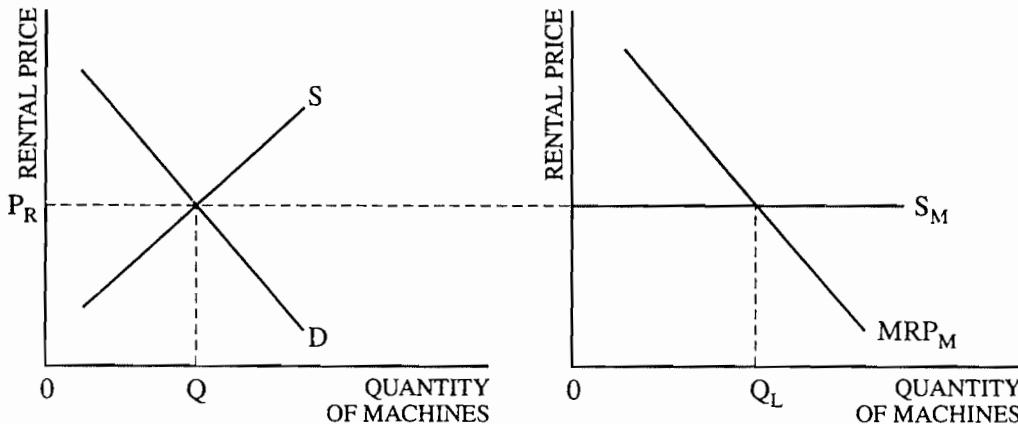
The mean score on this question was 1.60, which is 32 percent of the maximum possible score of 5 points. Students did well at calculating the hourly rental price that equated the marginal product per dollar spent on each input and thereby satisfied the conditions for the cost-minimizing combination of inputs. Students had difficulty drawing the side-by-side graphs for the factor market and the representative buyer.

Many students made errors when drawing the factor supply curve for the John Lamb Company. Students also had difficulty identifying the equilibrium rental quantity of machines for the John Lamb Company.

Factor markets are similar enough to product markets that they do not require a lot of time to teach, but it is important for teachers to emphasize the ways in which factor markets differ from product markets. Explanations of marginal revenue product, derived demand and the horizontal factor supply curve that individual firms face are central to these differences.

Scoring Guidelines for Question 2

5 points (2 + 2 + 1)



(a) 2 points:

- One point is earned for the correct side-by-side graphs with a horizontal machine supply curve for John Lamb (S , D , P_R , S_M).
- One point is earned for showing the equilibrium rental quantity of machines, Q_L , at the intersection of MRP and the horizontal supply curve.

(b) 2 points:

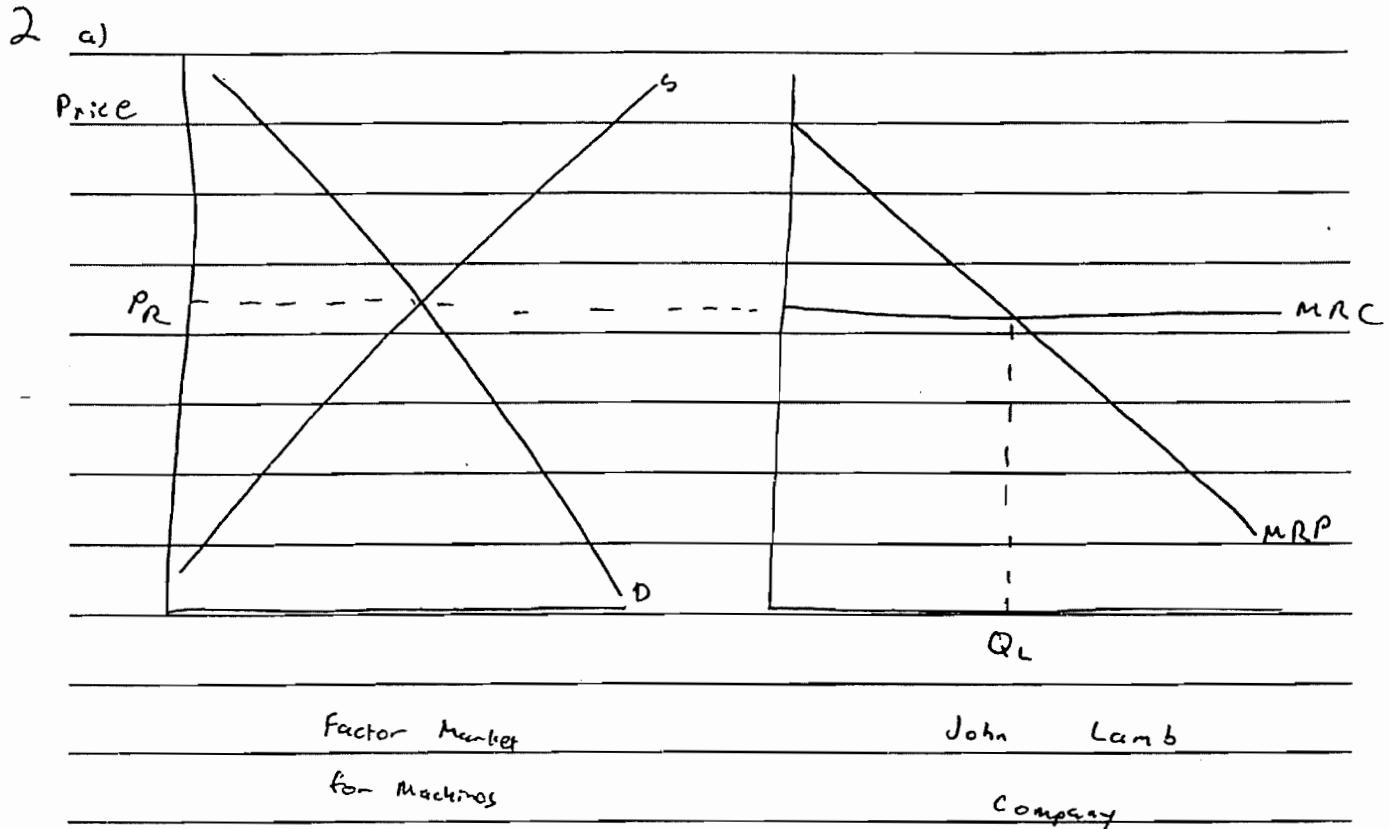
- One point is earned for stating that there will be no change to the marginal product curve for machine-hours.
- One point is earned for explaining that the MRP curve for machine-hours will decrease (shift to the left) because the decrease in demand decreases the price of widgets.

(c) 1 point:

- One point is earned for correctly calculating the rental price of a machine:
$$MP_L/w = MP_K/r = 28/14 = 60/r$$
. Therefore, $r = \$30$.

Sample Student Responses for Question 2

Student Response 1 (Score: 5)



b) (i) Marginal Product curve for machine hours remains the same.

(ii) Marginal Revenue Product decreases. $MRP = MPC \times \cancel{P}$ rice.

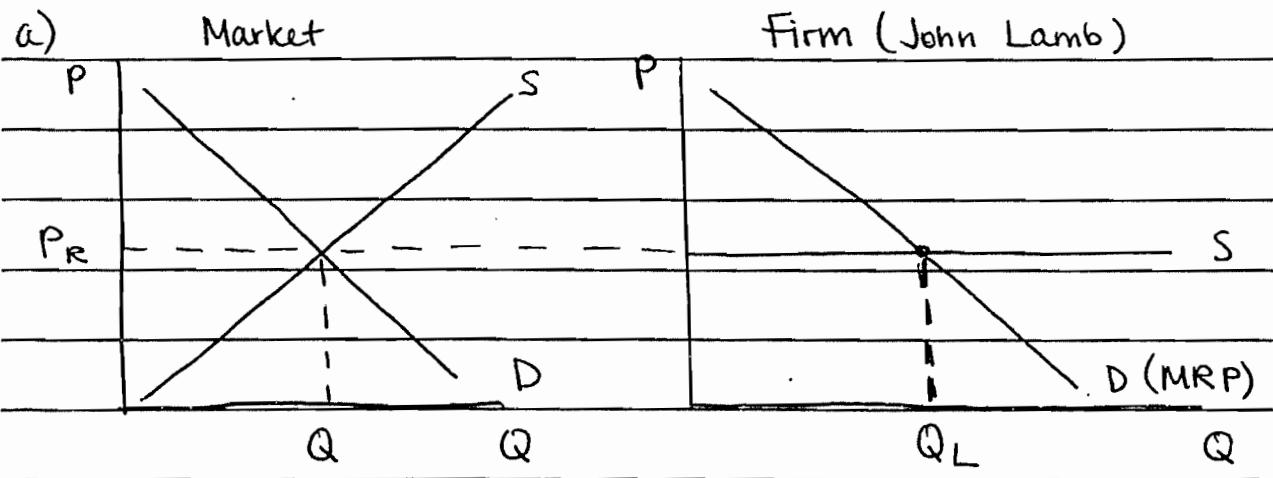
Decrease in demand decreases price which thus decreases ~~the~~ Marginal Revenue Product.

c) 30 dollars

Commentary

The student earned all 5 points for this question.

Student Response 2 (Score: 3)



b) i) The marginal product curve for machine hours will shift left.

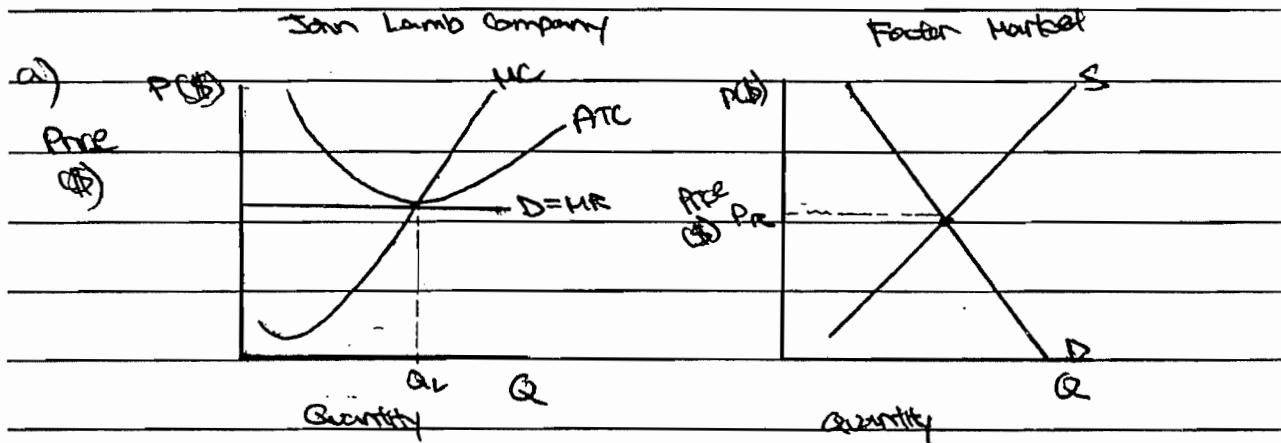
ii) ^{The} Marginal revenue product curve will shift left. The MRP is the demand curve for factors of production. If the demand for widgets decreases, the demand for the factors of production of widgets will also decrease. Therefore the MRP curve will shift left.

c) The hourly rental price of a machine will be \$30 per hour.

Commentary

The student lost 1 point in part (b) (i) for incorrectly stating that the marginal product moves to the left. The student lost 1 point in part (b) (ii) for failing to link the decrease in the marginal revenue product (MRP) to a decrease in the price (marginal revenue) of widgets.

Student Response 3 (Score: 1)



- b) i) Marginal Product curve will decrease
 ii) Marginal Revenue product curve will shift to the left because the revenue at a marginal point will decrease due to decrease in demand for widgets.

c) $\frac{MP_L}{MFE_L} = \frac{MP_E}{MFE_E}$ The hourly rental price of the machine is

$$\frac{28}{14} = \frac{60}{30} \$30.$$

Commentary

The student earned 1 point in part (c) for correctly calculating the hourly rental price of the machine.

Question 3 — Overview

This question assessed students' understanding of consumer surplus, producer surplus, socially optimal output and deadweight loss in a product market with negative externalities.

The mean score on this question was 2.30, which is 46 percent of the maximum possible score of 5 points. Students did well identifying consumer and producer surplus but had difficulty understanding the lack of deadweight loss in this context.

Less than half of the students could identify the socially optimal quantity of output. The same is true for the consumer surplus after the tax was imposed, although most could identify consumer surplus before the tax. Very few students answered the deadweight loss question correctly.

There are clearly learning opportunities in the area of markets with externalities. Students did well on the early sections but were thrown off by the negative externality. Because most production involves externalities, there are myriad examples with which to explain social optimality, surplus, and deadweight loss in this context. After the explanation of a product market, we as teachers can add, "Now what if the flowers provide a positive externality for passersby?" or "What if the widgets are made using energy from fossil fuels?" and then go into possible solutions and their effect on prices, quantities, surplus and deadweight loss.

Scoring Guidelines for Question 3

5 points (2 + 1 + 2)

(a) 2 points:

- One point is earned for identifying the consumer surplus as P_3JM .
- One point is earned for identifying the producer surplus as P_1P_3M .

(b) 1 point:

- One point is earned for identifying the socially optimal quantity as q_1 .

(c) 2 points:

- One point is earned for identifying the consumer surplus as P_5JK .
- One point is earned for indicating that there is no deadweight loss.

Sample Student Responses for Question 3

Student Response 1 (Score: 5)

a. i. $P_3 \rightarrow M$ is consumer surplus

ii. $P_1 P_3 M$ is producer surplus

b. The socially optimal quantity is q_1

c. i. $P_5 J K$ is consumer surplus

ii. $R KM$ is the area lost. However, since all harmful transactions have been eliminated to compensate for the negative externality, there is no deadweight loss.

Commentary

The student earned all 5 points for this question.

Student Response 2 (Score: 3)

a) i) J, P_3, M = consumer surplus

ii) P_3, M, P_1 = producer surplus

b) Socially optimal quantity = Q_1

c) i) consumer surplus = J, P_2, R, K

ii) deadweight loss = K, R, M

Commentary

The student lost 1 point in part (c) (i) for failing to correctly identify the area of consumer surplus. The student lost 1 point in part (c) (ii) for failing to recognize that there is no deadweight loss.

Student Response 3 (Score: 1)

a) i) P_3 JM

ii) KMU

b) q_3 is the socially optimal quantity

c) i) $P_3 P_5$ KM

ii) RMT

Commentary

The student earned 1 point in part (a) (i) for correctly identifying the area of consumer surplus.

Chapter IV: Statistical Information

- Table 4.1 — Section I and II Scores
- Table 4.2 — Scoring Worksheet
- Table 4.3 — Score Distributions
- Table 4.4 — Section I Scores and AP Scores
- How AP Scores Are Determined
- College Comparability Studies
- Reminders for All Score Report Recipients
- Reporting AP Scores
- Purpose of AP Scores

This chapter presents statistical information about overall student performance on the 2010 AP Microeconomics Exam.

Table 4.1 shows and summarizes score distributions for each of the free-response questions. The scoring worksheet presented in Table 4.2 provides step-by-step instructions for calculating AP section and composite scores and converting composite scores to AP Exam scores. Table 4.3 includes distributions for the overall exam scores. The score distributions conditioned on multiple-choice performance presented in Table 4.4 are useful in estimating a student's AP Exam score given only the student's multiple-choice score.

College comparability studies, which are conducted to collect information for setting AP score cut-points, are briefly discussed in this chapter. In addition, the purpose and intended use of AP Exams are reiterated to promote appropriate interpretation and use of the AP Exam and exam results.

Table 4.1 — Section I and II Scores

For Section I Answer Key and Percent Answering Correctly, please see pages 35–36 of this book.

The following table shows the score distributions for AP students on each free-response question from the 2010 AP Microeconomics Exam.

Score	Question 1		Question 2		Question 3	
	No. of Students	Percent at Score	No. of Students	Percent at Score	No. of Students	Percent at Score
10	6,691	14.33				
9	8,695	18.62				
8	6,326	13.55				
7	4,383	9.39				
6	2,846	6.10				
5	2,140	4.58	2,100	4.50	257	0.55
4	2,282	4.89	2,446	5.24	12,649	27.09
3	2,899	6.21	6,495	13.91	10,977	23.51
2	3,403	7.29	9,692	20.76	10,170	21.78
1	2,319	4.97	15,645	33.51	2,338	5.01
0	3,251	6.96	7,660	16.41	7,658	16.40
No Response	1,452	3.11	2,649	5.67	2,638	5.65
Total Students	46,687		46,687		46,687	
Mean	6.02		1.60		2.30	
Standard Deviation	3.38		1.35		1.49	
Mean as Percent of Maximum Score	60		32		46	

Table 4.2 — Scoring Worksheet

Effective with the May 2011 Exam*, total scores on the multiple-choice section are based on the number of questions answered correctly. Points are not deducted for incorrect answers and no points are awarded for unanswered questions. The maximum possible weighted score on Section I is 60 points, and it accounts for two thirds of the maximum possible composite score.

Section I: Multiple Choice

$$\text{Number Correct} \quad \times 1.0000 = \text{Weighted Section I Score}$$

(out of 60) (Do not round)

Section II: Free Response

$$\text{Question 1} \quad \times 1.5000 = \text{Weighted Section II Score}$$

(out of 10) (Do not round)

$$\text{Question 2} \quad \times 1.5000 = \text{Weighted Section II Score}$$

(out of 5) (Do not round)

$$\text{Question 3} \quad \times 1.5000 = \text{Weighted Section II Score}$$

(out of 5) (Do not round)

$$\text{Sum} = \text{Weighted Section II Score}$$

(Do not round)

AP Score Conversion Chart Microeconomics

Composite Score Range	AP Score
71–90	5
57–70	4
45–56	3
34–44	2
0–33	1

Composite Score

$$\text{Weighted Section I Score} + \text{Weighted Section II Score} = \text{Composite Score}$$

(Round to nearest whole number)



* Prior to the May 2011 Exam, a fraction of a point was deducted for each incorrect response on multiple-choice questions.

Table 4.3 — Score Distributions

More than 61 percent of the AP students who took this exam earned a qualifying score of 3 or above.

	Exam Score	Number of Students	Percent at Score
Extremely well qualified	5	6,938	14.86
Well qualified	4	12,343	26.44
Qualified	3	9,559	20.47
Possibly qualified	2	7,173	15.36
No recommendation	1	10,674	22.86
Total Number of Students		46,687	
Mean Score		2.95	
Standard Deviation		1.39	

Table 4.4 — Section I Scores and AP Scores

Due to the changes in multiple-choice scoring, the range of scores in Table 4.4 has changed, though the percentages remain the same.

For a given range of multiple-choice scores, this table shows the percentage of students receiving each AP score. If you have calculated the multiple-choice score (**Weighted Section I Score**) by using the formula shown in Table 4.2, you can use this table to figure out the most likely score that the student would receive based only on that multiple-choice score.

Multiple-Choice Score	AP Score					Total
	1	2	3	4	5	
52 to 60	0.0%	0.0%	0.0%	2.7%	97.3%	7.6%
44 to 51	0.0%	0.0%	1.3%	59.9%	38.8%	19.1%
36 to 43	0.0%	2.5%	35.4%	62.0%	0.1%	22.8%
27 to 35	3.9%	37.5%	55.5%	3.1%	0.0%	21.3%
19 to 26	57.9%	40.2%	2.0%	0.0%	0.0%	16.7%
0 to 18	99.2%	0.8%	0.0%	0.0%	0.0%	12.5%
Total	22.9%	15.4%	20.5%	26.4%	14.9%	100.0%

How AP Scores Are Determined

As described in Chapter II, the AP Microeconomics Exam has two sections. Section I has 60 multiple-choice questions and a score range from a minimum possible score of 0 to a maximum possible score of 60 points. Section II consists of three free-response questions. Question 1 has a score range from a minimum possible score of 0 to a maximum possible score of 10 points, and questions 2 and 3 have a possible score range of 0 to 5 points.

The scores on the different parts of the exam are combined to produce a composite score that ranges from a minimum possible score of 0 to a maximum possible score of 90 points. In calculating the composite scores, scores on different parts are multiplied by weights.

Composite scores are not released to students, schools or colleges. Instead, the composite scores are converted to scores on an AP 5-point scale and it is these scores that are reported. The process of calculating the composite score and converting it to an AP Exam score involves a number of steps that are shown in the Scoring Worksheet (Table 4.2) and described in detail here.

1. **The score on Section I is calculated.** Section I scores are calculated by totaling the number of correct answers. The maximum possible weighted score on Section I is 60 points, and it accounts for two thirds of the maximum possible composite score.
2. **The score on Section II is calculated.** The weights for questions in Section II are determined such that question 1 contributes 50 percent to the maximum possible weighted free-response score and questions 2 and 3 each contribute 25 percent. The weighted scores on the questions of Section II are summed to give the total weighted score for Section II. The maximum weighted score on Section II is 30 points, and it accounts for one third of the maximum possible composite score.
3. **AP Exam scores are calculated.** Composite scores are calculated by adding the weighted Section I and weighted Section II scores together. The AP Exam scores are calculated by comparing the composite scores to the four composite cut-scores selected during the score-setting process. A variety of information is available during the score-setting process to help determine the cut-scores corresponding to each AP score:
 - Statistical information based on test score equating
 - College/AP score comparability studies, if available
 - The Chief Reader's observations of students' free-response performance

■ The distribution of scores on different parts of the exam

■ AP score distributions from the past three years

See Table 4.3 for the score distributions for the 2010 AP Microeconomics Exam.

If you are interested in more detailed information about this process, please visit AP Central (apcentral.collegeboard.com). There you will also find information about how the AP Exams are developed, how validity and reliability studies are conducted, and other data on all AP subjects.

College Comparability Studies

The Advanced Placement Program has conducted college grade comparability studies in all AP subjects. These studies have compared the performance of AP students with that of college students in related courses who have taken the AP Exam at the end of their course. In general, AP cut-points are selected so that the lowest AP 5 is equivalent to the average A in college, the lowest AP 4 is equivalent to the average B, and the lowest AP 3 is equivalent to the average C (see below).

AP Score	Average College Grade
5	A
4	B
3	C
2	D
1	

Research studies conducted by colleges and universities and by the AP Program indicate that AP students generally receive higher grades in advanced courses than do students who have taken the regular first-year courses at the institution. Colleges and universities are encouraged to periodically undertake such studies to establish appropriate policy for accepting AP scores and ensure that admissions and placement standards remain valid. It is critical to verify that admissions and placement measures established for a previous class continue for future classes. Summaries of several studies are available at AP Central. Also on the College Board Web site is the free Admitted Class Evaluation Service™ (<http://professionals.collegeboard.com/higher-ed/validity>) that can predict how admitted college students will perform at a particular institution generally and how successful they can be in specific classes.

Reminders for All Score Report Recipients

AP Exams are designed to provide accurate assessments of achievement. However, any exam has limitations, especially when used for purposes other than those intended. Presented here are some suggestions for teachers to aid in the use and interpretation of AP scores:

- AP Exams in different subjects are developed and evaluated independently of each other. They are linked only by common purpose, format and method of reporting results. Therefore, comparisons should not be made between scores on different AP Exams. An AP score in one subject may not have the same meaning as the same AP score in another subject, just as national and college standards vary from one discipline to another.
- Score reports are confidential. Everyone who has access to AP scores should be aware of the confidential nature of the scores and agree to maintain their security. In addition, school districts and states should not release data about high school performance without the school's permission.
- AP Exams are not designed as instruments for teacher or school evaluation. Many factors influence AP Exam performance in a particular course or school in any given year. Thus, differences in AP Exam performance should be carefully studied before being attributed to the teacher or school.
- Where evaluation of AP students, teachers or courses is desired, local evaluation models should be developed. An important aspect of any evaluation model is the use of an appropriate method of comparison or frame of reference to account for yearly changes in student composition and ability, as well as local differences in resources, educational methods and socioeconomic factors.
- The AP Instructional Planning Report is sent to schools automatically and can be a useful diagnostic tool in reviewing course results. This report identifies areas of strength and weakness for the students in each AP course. The information may also provide teachers with guidance for course emphasis and student evaluation.
- Many factors can influence exam results. AP Exam performance can be affected by the degree of agreement between a course and the course defined in the relevant AP Course Description, use of different instructional methods, differences in emphasis or preparation on particular parts of the exam, differences in curriculum, or differences in student background and preparation in comparison with the national group.

Reporting AP Scores

The results of AP Exams are disseminated in several ways to students, their secondary schools and the colleges they select:

- College and student score reports contain a cumulative record of all scores earned by the student on AP Exams during the current or previous years. These reports are sent in July. (School score reports are sent shortly thereafter.)
- Group results for AP Exams are available to AP teachers in the AP Instructional Planning Report mentioned previously. This report provides useful information comparing local student performance with that of the total group of students taking an exam, as well as details on different subsections of the exam.

Several other reports produced by the AP Program provide summary information on AP Exams:

- State, National and Canadian Reports show the distribution of scores obtained on each AP Exam for all students and for subsets of students broken down by gender and by ethnic group.
- The Program also produces a one-page summary of AP score distributions for all exams in a given year.

For information on any of the above, please call AP Services at 609-771-7300 or e-mail apexams@info.collegeboard.org.

Purpose of AP Scores

AP scores are intended to allow participating colleges and universities to award college credit, advanced placement or both to qualified students. In general, an AP score of 3 or higher indicates sufficient mastery of course content to allow placement in the succeeding college course, or credit for and exemption from a college course comparable to the AP course. Students seeking credit through their AP scores should note that each college, not the AP Program or the College Board, determines the nature and extent of its policies for awarding advanced placement, credit or both. Because policies regarding AP scores vary, students should consult the AP policy of individual colleges and universities. Students can find information in a college's catalog or Web site, or by using the AP Credit Policy search at www.collegeboard.org/ap/creditpolicy.



AP[®] Microeconomics

■ apcentral.collegeboard.com



A graphic element consisting of a grid of nine squares. The top row contains three light gray squares, the middle row contains three medium gray squares, and the bottom row contains three dark gray squares. To the right of the grid, the year "2010" is written in a large, light gray, sans-serif font.

AP[®] Macroeconomics

RELEASED EXAM

- Multiple-Choice Questions, Answer Key and Diagnostic Guide
- Free-Response Questions with Scoring Guidelines, Sample Student Responses and Scoring Commentary
- Statistical Information About Student Performance on the 2010 Exam



About the College Board

The College Board is a mission-driven not-for-profit organization that connects students to college success and opportunity. Founded in 1900, the College Board was created to expand access to higher education. Today, the membership association is made up of more than 5,900 of the world's leading educational institutions and is dedicated to promoting excellence and equity in education. Each year, the College Board helps more than seven million students prepare for a successful transition to college through programs and services in college readiness and college success — including the SAT® and the Advanced Placement Program®. The organization also serves the education community through research and advocacy on behalf of students, educators and schools.

For further information, visit www.collegeboard.org.

The College Board strongly encourages educators to make equitable access a guiding principle for their AP programs by giving all willing and academically prepared students the opportunity to participate in AP. We encourage the elimination of barriers that restrict access to AP for students from ethnic, racial and socioeconomic groups that have been traditionally underserved. Schools should make every effort to ensure their AP classes reflect the diversity of their student population. The College Board also believes that all students should have access to academically challenging course work before they enroll in AP classes, which can prepare them for AP success. It is only through a commitment to equitable preparation and access that true equity and excellence can be achieved.

The 2010 AP® Macroeconomics Released Exam

Contains:

- Multiple-Choice Questions, Answer Key and Diagnostic Guide
- Free-Response Questions with:
 - Scoring Guidelines
 - Sample Student Responses
 - Scoring Commentary
- Statistical Information About Student Performance on the 2010 Exam

Materials included in this Released Exam may not reflect the current AP Course Description and exam in this subject, and teachers are advised to take this into account as they use these materials to support their instruction of students. For up-to-date information about this AP course and exam, please download **the official AP Course Description from the AP Central® Web site at apcentral.collegeboard.com.**

Chapter I: The AP® Process

- What Is the Purpose of the AP® Macroeconomics Exam?
- Who Develops the Exam?
- How Is the Exam Developed?
 - Section I — Multiple Choice
 - Section II — Free Response
- Question Types
 - Multiple Choice
 - Free Response
- Scoring the Exam
 - Who Scores the AP Macroeconomics Exam?
 - Ensuring Accuracy
 - How the Scoring Guidelines Are Created
 - Training Readers to Apply the Scoring Guidelines
 - Maintaining the Scoring Guidelines
- Preparing Students for the Exam
 - Essential Features of Student Responses

This chapter will give you a brief overview of the development and scoring processes for the AP Macroeconomics Exam. You can find more detailed information at AP Central® (apcentral.collegeboard.com).

What Is the Purpose of the AP Macroeconomics Exam?

The AP Macroeconomics Exam is designed to allow students to demonstrate the knowledge, understanding and analytical skills equivalent to those gained by students who have successfully completed a college-level introductory course in macroeconomics. The multiple-choice section of the exam covers the breadth of the curriculum in terms of knowledge, understanding and application of economic concepts. The free-response section allows students to demonstrate their knowledge and ability to apply economic principles to analyze and solve real-world problems. The free-response questions are scored both for the correctness of the methodology applied and the depth of reasoning and analysis demonstrated. A qualifying score on the AP Macroeconomics Exam may allow students to begin their college careers with credit for an introductory macroeconomics course and/or distribution credit for a course in social sciences or humanities.

Who Develops the Exam?

The AP Macroeconomics Development Committee, working with Assessment Specialists at ETS, develops the exam. This committee is appointed by the College Board

and is composed of six teachers from secondary schools, colleges and universities in the United States. The members provide different perspectives: high school teachers offer valuable advice regarding realistic expectations when matters of content coverage, skills required and clarity of phrasing are addressed. College and university faculty members ensure that the questions are at the appropriate level of difficulty for students planning to continue their studies at colleges and universities. Committee members typically serve for one to four years.

The Chief Reader, a college professor responsible for supervising the scoring of the free-response questions at the AP Reading, also aids in the development process. The Chief Reader attends every committee meeting to ensure that the free-response questions selected for the exam can be scored reliably. The expertise of the Chief Reader and the committee members who have scored exams in past years is notable: they bring to bear their valuable experience from past AP Readings and suggest changes to improve the quality and the performance of the questions. To find a list of current AP Development Committee members, please visit apcentral.collegeboard.com/developmentcommittees.

How Is the Exam Developed?

The Development Committee sets the exam specifications based on curriculum surveys of colleges, determining what will be tested and how it will be tested. It also determines the appropriate level of difficulty for the exam, based on its understanding of the level of competence required for succeeding in introductory macroeconomics courses in colleges and universities. Each AP Macroeconomics Exam is the result of several stages of development that together span two or more years.

Section I — Multiple Choice

1. Development Committee members and other college faculty write and submit multiple-choice questions directed to the major content areas outlined in the macroeconomics section of the *AP Economics Course Description*.
2. ETS Assessment Specialists perform preliminary reviews to ensure that the multiple-choice questions are worded clearly and concisely.
3. At the committee meetings, which are held three times a year, the committee members review, revise and approve the draft questions for use on future exams. They ensure

that the questions are clear and unambiguous, that each question has only one correct answer and that the difficulty level of the questions is appropriate.

4. From the pool of approved questions, ETS Assessment Specialists select an appropriate mix of materials for the multiple-choice section of an exam, making sure that the questions are distributed across the content areas as specified by the Development Committee in the macroeconomics section of the *AP Economics Course Description*.
5. The committee thoroughly reviews the draft exam in various stages of its development, revising the individual questions and the mix of questions until it is satisfied with the result.

The committee controls the difficulty level of the multiple-choice section by selecting a wide range of questions, a subset of which has been used in an earlier form of the exam.

Section II — Free Response

1. Well in advance of the exam administration, the members of the Development Committee and other college faculty write free-response questions for the exam. These are assembled into a free-response question pool.
2. From this pool, the committee selects an appropriate combination of questions for a particular exam. It reviews and revises these questions at all stages of development of that exam to ensure that they are of the highest possible quality. The committee considers, for example, whether the questions will offer an appropriate level of difficulty and whether they will elicit answers that will allow Readers, the high school and college macroeconomics teachers who score the free-response questions, to discriminate among the responses along the scoring guidelines used for the different questions. An ideal question enables stronger students to demonstrate their accomplishments while revealing the limitations of less proficient students.

Question Types

The 2010 AP Macroeconomics Exam contains a 70-minute multiple-choice section consisting of 60 questions that accounts for two thirds of the final score, and a 60-minute free-response section consisting of three questions that accounts for one third of the final score. The two sections are designed to measure a wide range of knowledge, understanding and analytical skills.

Multiple-choice questions are useful for measuring a student's level of competence in a variety of contexts. In addition, they have three other strengths:

1. They are highly reliable. Reliability, or the likelihood that students of similar ability levels taking a different form of the exam will receive the same scores, is controlled more effectively with multiple-choice questions than with free-response questions.
2. They allow the Development Committee to include a selection of questions at various levels of difficulty, thereby ensuring that the measurement of differences in students' achievement is optimized. For AP Exams, the most important distinctions are between students earning scores of 2 and 3 and those earning scores of 3 and 4. These distinctions are usually best accomplished by using many questions of middle difficulty.
3. They allow comparison of the ability level of the current students with those from another year. A number of questions from an earlier exam are included in the current one, allowing comparisons to be made between the scores of the earlier group of students and those of the current group. This information, along with other data, is used to establish AP scores that reflect the competence demanded by the Advanced Placement Program® and that can be legitimately compared with scores from earlier years.

Free-response questions on the AP Macroeconomics Exam evaluate students' knowledge of economic concepts, skills, and ability to apply economic methodology to analyze a given problem. They also allow students to demonstrate their ability to organize their thoughts.

The free-response and multiple-choice sections are designed to complement each other and to meet the overall course objectives and exam specifications. After each exam administration, the questions in each section are analyzed both individually and collectively, and the findings are used to improve the following year's exam.

Scoring the Exam

Who Scores the AP Macroeconomics Exam?

The multiple-choice answer sheets are machine scored. The teachers who score the free-response section of the AP Macroeconomics Exam are known as "Readers." The majority of these Readers are experienced faculty members who teach either an AP Macroeconomics course in a high school or an equivalent course at a college or university in the United States or Canada. Great care is taken to obtain a broad and balanced group of Readers. Among the factors considered before appointing someone to the role are school locale and setting (urban, rural and so on), gender,

ethnicity and years of teaching experience. University and high school macroeconomics teachers who are interested in applying to be a Reader at a future AP Reading can complete and submit an online application via AP Central (apcentral.collegeboard.com/readers) or request more information by e-mailing areader@ets.org.

In June 2010, approximately 100 economics teachers and professors gathered at the Duke Energy Convention Center in Cincinnati, Ohio to participate in the scoring session for the AP Macroeconomics Exam. Some of the most experienced members of this group were invited to serve as Question Leaders and Table Leaders, and they arrived at the Reading early to help prepare for the scoring session. The remaining Readers were divided into groups, with each group advised and supervised by a Table Leader. Under the guidance of the Chief Reader, Question Leaders and Table Leaders assisted in establishing scoring guidelines, selecting sample student responses that exemplified the guidelines, and preparing for Reader training. All of the free-response questions on the 2010 AP Macroeconomics Exam were evaluated by the Readers at this single, central scoring session under the supervision of the Chief Reader.

Ensuring Accuracy

The primary goal of the scoring process is to have all Readers score their sets of responses fairly, consistently and with the same guidelines as the other Readers. This goal is achieved through the creation of detailed scoring guidelines, the thorough training of all Readers, and the various checks and balances that are applied throughout the AP Reading.

How the Scoring Guidelines Are Created

1. As the questions are being developed and reviewed before the Reading, the Development Committee and the Chief Reader discuss the scoring of the free-response questions to ensure that the questions can be scored validly and reliably.
2. During the pre-Reading period, several important tasks are completed. The Chief Reader presents the preliminary scoring guidelines and works with the Question Leaders and Table Leaders to refine them. The Question Leaders and Table Leaders review these scoring guidelines and test them by applying them to actual student responses. The scoring guidelines are then revised and adjusted, if necessary, to reflect not only the committee's original intent, but also the full range of actual responses that will be encountered by the Readers.
3. Once the scoring of student responses begins, no changes or modifications in the scoring guidelines are made. Given the expertise of the Chief Reader and the analysis of many

student responses by Question Leaders and Table Leaders in the pre-Reading period, these guidelines can be used to cover the whole range of student responses. Each Question Leader and Table Leader devotes a great deal of time and effort during the first day of the Reading to teaching the scoring guidelines for that particular question and to ensuring that everyone evaluating responses for that question understands the scoring guidelines and can apply them consistently and reliably.

Training Readers to Apply the Scoring Guidelines

Because Reader training is so vital in ensuring that students receive an AP score that accurately reflects their performance, the process is thorough:

1. On the first day of the Reading, the Chief Reader provides an overview of the exam and the scoring process to the entire group of Readers. The Readers then break into smaller groups, with each group at a table working on a particular question or questions for which it receives specific training.
2. Each Table Leader directs a discussion of the assigned question, commenting on the question requirements and student performance expectations. The scoring guidelines for the question are explained and discussed.
3. The Readers are trained to apply the scoring guidelines by reading and evaluating samples of student responses that were selected at the pre-Reading session as clear examples of the various score points and the kinds of responses Readers are likely to encounter. Table Leaders explain why the responses received particular scores. Once a table completes the scoring of the training samples successfully, they start a Round-Robin scoring process before they are instructed to score on their own. In the Round-Robin stage, each Reader reads and scores the same folder of student responses. The scores given by each Reader are then evaluated in order to resolve any inconsistency in the application of the scoring guidelines.
4. When Table Leaders are convinced that Readers understand the scoring guidelines and can apply them uniformly, the scoring of student responses begins. Readers start by reading in teams of two. Each team member scores a set of responses and then exchanges the set for a second reading. Scores and differences in judgment are discussed until agreement is reached, with the Table Leader, Question Leader or Chief Reader acting as arbitrator when needed. After a team shows consistent agreement on its scores, its members proceed to score responses individually. Readers are encouraged

to seek advice from each other, the Table Leader, the Question Leader or the Chief Reader when in doubt about a score.

5. Throughout the course of the Reading, Readers discuss with their Table Leader any student response that seems problematic or inappropriate. A student response that is problematic receives multiple readings and evaluations.

Maintaining the Scoring Guidelines

Throughout the Reading, the Table Leaders continue to reinforce the use of the scoring guidelines by asking their groups to review sample responses that have already been discussed as clear examples of particular scores, or to score new samples and discuss these scores with them. This procedure helps the Readers adhere to the standards of the group and helps to ensure that a student response will get the same score whether it is evaluated at the beginning, middle or end of the Reading.

A potential problem is that a Reader could unintentionally score a student response higher or lower than it deserves because that same student performed well or poorly on other questions. The following steps are taken to prevent this so-called halo effect:

- A different Reader scores each question and the student's identity is unknown to the Reader. Thus, each Reader can evaluate student responses without being prejudiced by knowledge about individual students.
- No marks of any kind are made on the students' papers. The Readers record the scores on a form that is identified only by the student's AP number. Readers are unable to see the scores that have been given to other responses in the exam booklet.

Other methods help ensure that everyone is adhering closely to the scoring guidelines:

- Table Leaders backread (reread) a portion of the student responses from each of the Readers in their groups. This approach allows Table Leaders to guide their Readers toward appropriate and consistent interpretations of the scoring guidelines.
- Table Leaders are instructed to begin each day (especially in the early part of the Reading) with Round-Robin scoring. This helps identify any Reader's departure from the scoring guidelines and maintains the consistent application of the guidelines throughout the Reading.
- The Chief Reader and the Question Leaders monitor use of the full range of the scoring scale for the group and for each Reader by checking daily score distributions and by randomly reading selected student responses to check for scoring consistency.

Preparing Students for the Exam

On the free-response section of the AP Macroeconomics Exam, students are asked to apply their knowledge and understanding of macroeconomics concepts by writing responses to two short-answer questions and one long analysis question. They are also asked to demonstrate knowledge and understanding of the macroeconomics concepts outlined in the *AP Economics Course Description* under seven major categories: basic economic concepts; measurement of economic performance; national income and price determination; financial sector; inflation, unemployment, and stabilization policies; economic growth and productivity; and open economy: international trade and finance. The following is intended as a guide for learning to respond to the free-response questions.

Essential Features of Student Responses

The first, essential task for responding successfully to the free-response questions is to recognize the subject matter or topic of the question. Students should master the concepts and topics outlined in the *AP Economics Course Description*, understanding the economics concepts and topics in both theory and application.

The second task is to recognize what the question asks the student to do. Understanding the meaning of the command words in the question, such as "identify," "draw," "explain" and "calculate," and responding appropriately to them, increases the chance of giving a correct response. Students should realize that there is something of an order to the tasks contained in a question. For example, identifying is easier than explaining and calculating. An "identification" need not even be in complete sentences, while an "explanation" may require several sentences. Thus, it is important for the students to focus on command words and practice appropriate responses.

Finally, students should also be encouraged to practice drawing and labeling graphs correctly. In a typical exam, about 20 percent of the scores are associated with drawing graphs as part of an explanation to a question.

Chapter II: The 2010 AP Macroeconomics Exam

- Exam Content and Format
- Giving a Practice Exam
- Instructions for Administering the Exam
- Blank Answer Sheet
- The Exam

Exam Content and Format

The 2010 AP Macroeconomics Exam is 2 hours and 10 minutes in length and has two sections:

- A 70-minute multiple-choice section consisting of 60 questions, accounting for two thirds of the final score.
- A 60-minute free-response section consisting of 3 questions, accounting for one third of the final score.

Giving a Practice Exam

The following pages contain the instructions as they appeared in the 2009-10 *AP Examination Instructions* for administering the 2010 AP Macroeconomics Exam.

Following these instructions are a blank 2010 answer sheet and the 2010 AP Macroeconomics Exam. If you plan to use this released exam to test your students, you may wish to use these instructions to create an exam situation that closely resembles an actual administration. If so, read only the indented, boldface directions to the students; all other instructions are for the person administering the exam and need not be read aloud. Some instructions, such as those referring to the date, the time and page numbers, are no longer relevant and should be ignored. Note: the term “grades,” which appears in the exam and exam instructions that follow, refers to AP Exam scores of 1, 2, 3, 4, or 5.

Another publication you might find useful is the *Packet of 10* — ten copies of the 2010 AP Macroeconomics Exam, each with a blank answer sheet. You can order this title online at the College Board Store (store.collegeboard.com).

2010 AP Macroeconomics Exam Format

Multiple Choice (Section I)

60 questions 70 minutes

Free Response (Section II)

3 questions 60 minutes

Instructions for Administering the Exam
(from the 2009-10 AP Examination Instructions book)

SECTION I: Multiple-Choice Questions

- Do not begin the exam instructions below until you have completed the appropriate
● General Instructions for your group.**

Make sure you begin the exam at the designated time. When you have completed the General Instructions, say:

[At the Macroeconomics administration only, say:]

**It is Thursday morning, May 13, and you will be taking the
AP Macroeconomics Exam.**

[At the Microeconomics administration only, say:]

**It is Thursday afternoon, May 13, and you will be taking the
AP Microeconomics Exam.**

[Continue for both administrations:]

**In a moment, you will open the packet that contains your exam materials.
By opening this packet, you agree to all of the AP Program's policies and
procedures outlined in the 2009-10 *Bulletin for AP Students and Parents*.
You may now open your exam packet and take out the Section I booklet, but
do not open the booklet or the shrinkwrapped Section II materials. Put the
white seals aside. Read the statements on the front cover of Section I and
look up when you have finished. . . .**

**Now sign your name and write today's date. Look up when you have
finished. . . .**

Now print your full legal name where indicated. Are there any questions? . . .

Answer any questions. Then say:

**Now turn to the back cover and read it completely. Look up when you have
finished. . . .**

Are there any questions? . . .

Answer any questions. Then say:

**Section I is the multiple-choice portion of the exam. You may never discuss
these specific multiple-choice questions at any time in any form with anyone,
including your teacher and other students. If you disclose these questions
through any means, your AP Exam score will be canceled. Are there any
questions? . . .**

Answer any questions. Then say:

**You must complete the answer sheet using a No. 2 pencil only. Mark
all of your responses on your answer sheet, one response per question.
Completely fill in the ovals. There are more answer ovals on the answer
sheet than there are questions, so you will have unused ovals when you
reach the end. Your answer sheet will be scored by machine; any stray**

marks or smudges could be read as answers. If you need to erase, do so carefully and completely. No credit will be given for anything written in the exam booklet. Scratch paper is not allowed, but you may use the margins or any blank space in the exam booklet for scratch work. Calculators are not allowed on any part of this exam. Are there any questions? . . .

Answer all questions regarding procedure. Then say:

You have 1 hour and 10 minutes for this section. Open your Section I booklet and begin.

 Note Start Time here _____. Note Stop Time here _____. You and your proctors should make sure students are marking their answers in pencil on their answer sheets, and that they are not looking at their shrinkwrapped Section II booklets. After 1 hour and 10 minutes, say:

Stop working. Close your booklet and put your answer sheet on your desk, face up. I will now collect your answer sheet.

After you have collected an answer sheet from each student, say:

Take your seals and press one on each area of your exam booklet marked "PLACE SEAL HERE." Fold them over the open edges and press them to the back cover. When you have finished, place the booklet on your desk with the cover face up. . . .

I will now collect your Section I booklet.

As you collect the sealed Section I booklets, check to be sure that each student has signed the front cover. There is a 10-minute break between Sections I and II. When all Section I materials have been collected and accounted for and you are ready for the break, say:

Please listen carefully to these instructions before we take a break. Everything you placed under your chair at the beginning of the exam must remain there. You are not allowed to consult teachers, other students, or textbooks about the exam materials during the break. You may not make phone calls, send text messages, check e-mail, access a computer, calculator, cell phone, PDA, MP3 player, e-mail/messaging device, or any other electronic or communication device. Remember, you are not allowed to discuss the multiple-choice section of this exam with anyone at any time. Failure to adhere to any of these rules could result in cancellation of your score. Please leave your shrinkwrapped Section II package on top of your desk during the break. You may get up, talk, go to the restroom, or get a drink. Are there any questions? . . .

Answer all questions regarding procedure. Then say:

 Let's begin our break. Testing will resume at _____.

SECTION II: Free-Response Questions

Proctors at schools outside North, Central, and South America: In this section, any information in [brackets] is specific to the form of the exam that you are administering. Please be sure to read spoken instructions shown in [brackets].

After the break, say:

May I have everyone's attention? Place your Student Pack on your desk. . . .

You may now open the shrinkwrapped Section II package, but do not break the seal on the pink [goldenrod] booklet until you are told to do so. . . .

Read the bulleted statements on the front cover of the pink [goldenrod] booklet. Look up when you have finished. . . .

Now place an AP number label on the shaded box. If you don't place an AP number label in this box, it may be impossible to identify your booklet, which could delay or jeopardize your AP score. If you don't have any AP number labels, write your AP number in the box. Look up when you have finished. . . .

Read the last statement. . . .

Using a pen with black or dark blue ink, print the first, middle, and last initials of your legal name in the boxes and print today's date where indicated. This constitutes your signature and your agreement to the conditions stated on the front cover. . . .

Turn to the back cover and read Item 1 under "Important Identification Information." Print your identification information in the boxes. Note that you must print the first two letters of your last name and the first letter of your first name. Look up when you have finished. . . .

In Item 2, print your date of birth in the boxes. . . .

Read Item 3 and copy the school code you printed on the front of your Student Pack into the boxes. . . .

Read Item 4. . . .

Are there any questions? . . .

Answer all questions regarding procedure. Then say:

I need to collect the Student Pack from anyone who will be taking another AP Exam. If you are taking another AP Exam, put your Student Pack on your desk. You may keep it only if you are not taking any other AP Exams this year. If you have no other AP Exams to take, place your Student Pack under your chair now. . . .

While Student Packs are being collected, read the "At a Glance" column and the instructions on the back cover of the pink [goldenrod] booklet. Do not break the seal on the booklet until you are told to do so. Look up when you have finished. . . .

Collect the Student Packs. Then say:

Are there any questions? . . .

Answer all questions regarding procedure. Then say:

Now take the green [lavender] insert and, in the upper right-hand corner of the cover, print your name, your teacher's name, and your school's name. . . .

Read the information on the front cover of the green [lavender] insert. Look up when you have finished. . . .

Section II begins with a 10-minute reading period. During the reading period, you will read and plan what you will write. You may make notes in the green [lavender] insert. Are there any questions? . . .

Answer any questions. Then say:

You may now open the green [lavender] insert and begin the 10-minute reading period. Do not break the seal on the pink [goldenrod] booklet yet.



Note Start Time here _____. Note Stop Time here _____. After 10 minutes, say:

Stop. The reading period is over. You have 50 minutes to complete Section II. You are responsible for pacing yourself, and may proceed freely from one question to the next. You may use the green [lavender] insert for scratch paper, but you must write your answers in the pink [goldenrod] booklet using a pen. It is not permissible to use other colored pens or pencils in drawing graphs or diagrams. Write the number of the question you are working on at the top of each page in the pink [goldenrod] booklet. If you need more paper during the exam, raise your hand. At the top of each extra piece of paper you use, be sure to write your AP number and the number of the question you are working on. Are there any questions? . . .

Answer any questions. Then say:

Using your finger, break open the sealed Section II booklet. Do not peel the seal away from the booklet. Begin Section II.



Note Start Time here _____. Note Stop Time here _____. You and your proctors should make sure students are using pens with black or dark blue ink and that they are writing their answers in their pink [goldenrod] Section II booklets and not in their green [lavender] inserts. After 40 minutes, say:

There are 10 minutes remaining.

After 10 minutes, say:

Stop working and close your exam booklet and green [lavender] insert. Put your pink [goldenrod] booklet on your desk, face up. Put your green [lavender] insert next to it. . . .

If any students used extra paper for the free-response section, have those students staple the extra sheet/s to the first page corresponding to that question in their free-response booklets. Then say:

Remain in your seat, without talking, while the exam materials are collected. . . .

Collect a pink [goldenrod] Section II booklet and a green [lavender] insert from every student. Check for the following:

- Section II booklet front cover: The student placed an AP number label in the shaded box, and printed his or her initials and today's date.
- Section II booklet back cover: The student completed the "Important Identification Information" area.
- The student wrote answers in the pink [goldenrod] booklet and not in the green [lavender] insert.

The green [lavender] inserts must be stored securely for no fewer than two school days. After the two-day holding time, the green [lavender] inserts may be given to the appropriate AP teacher(s) for return to the students. When all exam materials have been collected and accounted for, return to students any electronic devices you may have collected before the start of the exam. Then say:

Your teacher will return your green [lavender] insert to you in about two days. You may not discuss the free-response questions with anyone until that time. Remember that the multiple-choice questions may never be discussed or shared in any way at any time. You should receive your score report in the mail about the third week of July.

If any students completed the AP number card at the beginning of this exam, say:

Please remember to take your AP number card with you.

Then say:

You are now dismissed.

Exam materials should be put in secure storage until they are returned to the AP Program after your school's last administration. Before storing materials, check your list of students who are eligible for fee reductions and fill in the appropriate oval on their registration answer sheets.

To receive a separate AP Instructional Planning Report or student score roster for each AP class taught, fill in the appropriate oval in the "School Use Only" section of the answer sheet. See "Post-Exam Activities" in the 2009-10 *AP Coordinator's Manual*.

R. This section is for the survey questions in the AP Student Pack. (Do not put responses to exam questions in this section.) Be sure each mark is dark and completely fills the oval.

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S. LANGUAGE—Do not complete this section unless instructed to do so.

If this answer sheet is for the French Language, German Language, Spanish Language, or Spanish Literature Exam, please answer the following questions. (Your responses will not affect your score.)

1. Have you lived or studied for one month or more in a country where the language of the exam you are now taking is spoken?

Yes No

2. Do you regularly speak or hear the language at home?

Yes No

Indicate your answers to the exam questions in this section. If a question has only four answer options, do not mark option E. Your answer sheet will be scored by machine. Use only No. 2 pencils to mark your answers on pages 2 and 3 (one response per question). After you have determined your response, be sure to completely fill in the oval corresponding to the number of the question you are answering. Stray marks and smudges could be read as answers, so erase carefully and completely. Any improper gridding may affect your score. Answers written in the multiple-choice booklet will not be scored.

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FOR QUESTIONS 76-151, SEE PAGE 3.

DO NOT WRITE IN THIS AREA.

Be sure each mark is dark and completely fills the oval. If a question has only four answer options, do not mark option E.

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The Exam**AP® Macroeconomics Exam****SECTION I: Multiple-Choice Questions****2010****DO NOT OPEN THIS BOOKLET UNTIL YOU ARE TOLD TO DO SO.****At a Glance****Total Time**
1 hour, 10 minutes**Number of Questions**
60**Percent of Total Score**
66.6%**Writing Instrument**
Pencil required**Instructions**

Section I of this exam contains 60 multiple-choice questions. Fill in only the ovals for numbers 1 through 60 on your answer sheet.

Indicate all of your answers to the multiple-choice questions on the answer sheet. No credit will be given for anything written in this exam booklet, but you may use the booklet for notes or scratch work. After you have decided which of the suggested answers is best, completely fill in the corresponding oval on the answer sheet. Give only one answer to each question. If you change an answer, be sure that the previous mark is erased completely. Here is a sample question and answer.

Sample Question Sample AnswerChicago is a A B C D E

- (A) state
- (B) city
- (C) country
- (D) continent
- (E) village

Use your time effectively, working as quickly as you can without losing accuracy. Do not spend too much time on any one question. Go on to other questions and come back to the ones you have not answered if you have time. It is not expected that everyone will know the answers to all of the multiple-choice questions.

About Guessing

Many students wonder whether or not to guess the answers to questions about which they are not certain. In this section of the exam, as a correction for random guessing, one-fourth of the number of questions you answer incorrectly will be subtracted from the number of questions you answer correctly. If you are not sure of the best answer but have some knowledge of the question and are able to eliminate one or more of the answer choices, your chance of answering correctly is improved, and it may be to your advantage to answer such a question.



Minimum 20% post-consumer waste

Section I

The inclusion of source material in this exam is not intended as an endorsement by the College Board or ETS of the content, ideas, or values expressed in the material. The material has been selected by the economics faculty who serve on the AP Economics Development Committee. In their judgment, the material printed here reflects various aspects of the course of study on which this exam is based and is therefore appropriate to use to measure the skills and knowledge of this course.

MACROECONOMICS

Section I

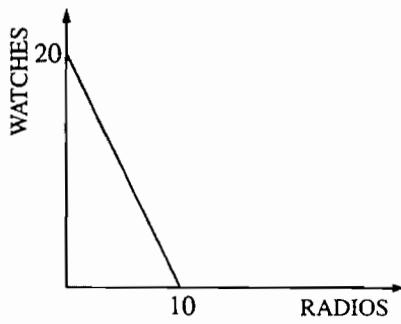
Time—70 minutes

60 Questions

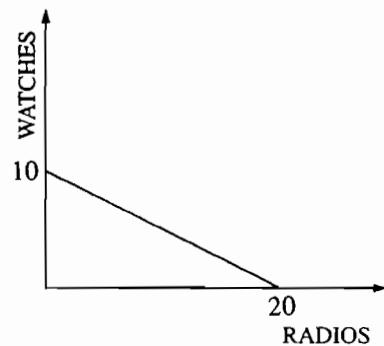
Directions: Each of the questions or incomplete statements below is followed by five suggested answers or completions. Select the one that is best in each case and then fill in the corresponding oval on the answer sheet.

1. Economic growth is best defined as
 - (A) a reduction in the infant mortality rate
 - (B) a decrease in the unemployment rate
 - (C) an increase in the labor force participation rate
 - (D) a short-run increase in gross domestic product without inflation
 - (E) a sustained increase in real gross domestic product per capita
2. The price of one nation's currency expressed in terms of another nation's currency is called
 - (A) the world price
 - (B) the exchange rate
 - (C) the law of one price
 - (D) terms of trade
 - (E) purchasing-power parity

Country X



Country Y

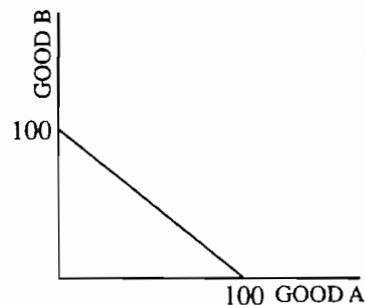


3. Using equal amounts of labor hours, Country X and Country Y can each produce the number of watches and radios shown in the production possibilities curves above. Based on the information, which of the following is true?
 - (A) Country X has an absolute advantage in the production of both watches and radios and a comparative advantage in the production of watches.
 - (B) Country Y has an absolute advantage in the production of both watches and radios and a comparative advantage in the production of radios.
 - (C) Countries X and Y can engage in a mutually advantageous trade by exchanging 1 watch for 1 radio.
 - (D) Country Y is willing to give up 2 watches in exchange for 1 radio from Country X.
 - (E) Country X is willing to give up 2 radios in exchange for 1 watch from Country Y.

Section I

4. If a worker's nominal wage rate increases from \$10 to \$12 per hour and at the same time the general price level increases by 10 percent, the worker's real wage has
- (A) approximately decreased by 10%
 - (B) approximately decreased by 20%
 - (C) approximately increased by 10%
 - (D) approximately increased by 20%
 - (E) not changed
5. Which of the following is an example of fiscal policy?
- (A) Increasing government expenditures to build highways
 - (B) Increasing the money supply to increase income
 - (C) Decreasing the discount rate to lower unemployment and inflation
 - (D) Decreasing the federal funds rate to stimulate investment
 - (E) Decreasing the reserve ratio to increase bank reserves
6. The Federal Reserve can cause an increase in interest rates in an attempt to
- (A) reduce inflation
 - (B) reduce cyclical unemployment
 - (C) reduce structural unemployment
 - (D) increase aggregate demand
 - (E) increase investment spending
7. The value of which of the following is counted in the United States gross domestic product?
- (A) Clean air
 - (B) Child care a father provides for his child
 - (C) An automobile produced in Sweden by a United States firm
 - (D) A car produced in the United States and sold in Europe
 - (E) Medical services not provided due to preventative health care
8. Aggregate demand may be measured by adding
- (A) consumption, investment, savings, and imports
 - (B) savings, government spending, and business inventories
 - (C) consumption, investment, government spending, and net exports
 - (D) domestic private expenditures and government spending
 - (E) domestic expenditures and imports
9. According to the short-run Phillips curve, a decrease in unemployment is expected to be accompanied by
- (A) higher labor-force participation
 - (B) an increase in inflation
 - (C) an increase in the productivity of capital
 - (D) an increase in the government deficit
 - (E) a decrease in real gross domestic product
10. If labor costs rise in the automobile industry, which of the following will happen to car prices and the quantity of cars sold?
- | <u>Price</u> | <u>Quantity Sold</u> |
|--------------|----------------------|
| (A) Decrease | Decrease |
| (B) Decrease | Increase |
| (C) Increase | Decrease |
| (D) Increase | Increase |
| (E) Increase | Not change |
11. The annual inflation rate is expected to be 5 percent over the next 3 years. Juan plans to take out a 3-year loan to purchase an automobile. If Juan decides not to take out the loan if the real interest rate exceeds 3 percent, the highest nominal interest rate he is willing to pay is
- (A) 2 percent
 - (B) 3 percent
 - (C) 8 percent
 - (D) 15 percent
 - (E) 25 percent

12. Which of the following is true about the national debt of the United States?
- It is the debt owed to foreign investors.
 - It is the accumulation of past and current budget deficits and surpluses.
 - It increases when gross domestic product increases.
 - It increases when exports decrease, and decreases when exports increase.
 - It did not exist before 1980.
13. Which of the following most undermines the ability of a nation's currency to store value?
- A decrease in the purchasing power of the currency
 - The use of credit and debit cards as mediums of exchange
 - An increase in the prices of federal bonds
 - Appreciation of the currency in the international money market
 - An increase in the supply of foreign currencies in the international money market
14. Assume that the inflation rate in Country X is very high relative to the inflation rates in all of its trading partners. Which of the following is likely to happen to Country X's currency on the foreign exchange market?
- The demand curve for the currency will shift to the right, and the currency will appreciate.
 - The demand curve for the currency will shift to the left, and the currency will depreciate.
 - The supply curve for the currency will shift to the left, and the currency will appreciate.
 - The supply curve for the currency will shift to the left, and the currency will depreciate.
 - There will be no shift in the demand curve for the currency, but the currency will depreciate.
15. Comparative advantage implies that
- no country should specialize completely in the production of any one good
 - every country should try to export more than it imports
 - developing countries should import raw materials and export manufactured goods
 - two countries should benefit from trade unless both have equal opportunity costs in every good
 - countries should impose tariffs to protect their domestic industries
16. If the velocity of money is stable, the quantity theory of money predicts that an increase in the money supply will lead to a proportional
- increase in the nominal output
 - decrease in the price level
 - decrease in the nominal interest rate
 - decrease in the real interest rate
 - decrease in the unemployment rate
17. The diagram below shows a linear production possibilities curve for a country.



If the economy is currently producing 10 units of good A and 90 units of good B, the opportunity cost of increasing the production of good A from 10 units to 20 units is how many units of good B?

- 0.5
- 1
- 5
- 10
- 20

Section I

Item 18 was not scored.

19. Which of the following is most likely to occur when the Federal Reserve buys government bonds on the open market?

- (A) The demand for money will decrease.
- (B) The government's debt will decrease.
- (C) Interest rates will decrease.
- (D) The discount rate will increase.
- (E) Investment demand will decrease.

20. An industry historically used employees with specific skills. If this industry experiences technological advances that require new skills, there will most likely be

- (A) cyclical unemployment
- (B) frictional unemployment
- (C) seasonal unemployment
- (D) structural unemployment
- (E) no change in unemployment

21. If marginal business tax rates are decreased, how will aggregate supply and employment change in the long run?

<u>Aggregate Supply</u>	<u>Employment</u>
(A) Increase	Increase
(B) Increase	Decrease
(C) Decrease	Increase
(D) Decrease	Decrease
(E) Not change	Increase

22. Which of the following would cause the official unemployment rate to underestimate the problem of unemployment?

- (A) Workers receiving unemployment compensation
- (B) Cyclically unemployed workers
- (C) Discouraged workers
- (D) Recent college graduates looking for work
- (E) Retirees

23. Which of the following actions by the Federal Reserve reduces the ability of the banking system to create money?

- (A) Decreasing the federal funds rate
- (B) Decreasing the discount rate
- (C) Increasing the money supply
- (D) Increasing the reserve requirement
- (E) Buying government bonds on the open market

24. An increase in the international value of the United States dollar will tend to cause

- (A) United States exports to fall
- (B) the national income of the United States to increase
- (C) employment in the manufacturing sector of the United States to increase
- (D) the inflation rate in the United States to increase
- (E) the growth rate of the United States economy to increase

25. Which of the following statements about the simple circular flow model of a market economy is correct?

- (A) Households are on the demand side of the product market and the supply side of the resource market.
- (B) Business firms are on the supply side of both the product market and the resource market.
- (C) Households receive income in the form of wages, and business firms receive income in the form of investment.
- (D) Exports and investment expenditures are examples of leakage from the circular flow, whereas imports and savings are injections.
- (E) Circular flow models are used primarily to explain why money is necessary in any economic system.

26. Which of the following government policies can reduce the rate of inflation in the short run?

- (A) Providing investment tax credits for businesses
- (B) Reducing personal income tax rates
- (C) Selling bonds on the open market
- (D) Decreasing the reserve requirement
- (E) Decreasing the discount rate

27. Crowding out occurs when

- (A) increases in government spending become ineffective because tax revenues increase as income increases
- (B) government borrowing to finance its spending decreases private sector investment
- (C) monetary policy actions decrease the effectiveness of fiscal policy
- (D) restrictive monetary policy causes the interest rate to increase
- (E) government spending and private sector spending increase by the same percentage rate

28. Which of the following is true of a horizontal aggregate supply curve?

- (A) It is the usual assumption made by classical economists analyzing the long run.
- (B) It suggests that increases in output can occur without increases in price levels.
- (C) It suggests that a shift in the aggregate demand curve will lead to a change in the price level.
- (D) It is likely to occur only in highly industrialized economies.
- (E) It cannot shift, therefore output remains constant.

29. Which of the following individuals is classified as unemployed?

- (A) A fifteen-year-old high school student who is looking for a babysitting job
- (B) A laid-off computer programmer who has given up looking for a new job
- (C) A parent who works in an after-school day care center for 15 hours a week
- (D) A recent college graduate who is looking for her first job
- (E) A mayor who lost an election and retired

30. If an effective price floor is removed from a market for a good, then the price and quantity of the good sold will change in which of the following ways?

<u>Price</u>	<u>Quantity</u>
(A) Increase	Increase
(B) Increase	Decrease
(C) Decrease	Increase
(D) Decrease	Decrease
(E) No change	Increase

31. When the Federal Reserve increases the money supply to stimulate aggregate demand, workers believe that this action will cause inflation in the future and ask for higher wages to offset the expected increase in inflation. This is an example of

- (A) adaptive expectations
- (B) rational expectations
- (C) the velocity of money
- (D) the real balance effect
- (E) the money multiplier

32. Which of the following would be included as a liability on a commercial bank's balance sheet?

- (A) Consumer loans
- (B) Demand deposits
- (C) Net worth
- (D) Bank reserves
- (E) Treasury bonds

Section I

33. Which of the following statements best describes the impact of a decrease in Japanese income on aggregate demand in the United States?
- (A) There will be no change in aggregate demand because United States aggregate demand depends only on the income of United States consumers.
 - (B) Aggregate demand will decrease because the demand for United States exports decreases.
 - (C) Aggregate demand will decrease because the value of the United States dollar decreases relative to the Japanese yen.
 - (D) Aggregate demand will increase because a decrease in income in Japan causes an increase in income in the United States.
 - (E) Aggregate demand will increase because interest rates in the United States decrease.
34. Suppose that the Federal Reserve is committed to keeping the nominal interest rate fixed. To maintain the interest rate target in the face of an expansionary fiscal policy, the Federal Reserve can do which of the following?
- (A) Increase the prime rate
 - (B) Increase the discount rate
 - (C) Increase the federal funds rate
 - (D) Engage in open-market purchases
 - (E) Engage in open-market sales
35. Which of the following is true of the quantity of money demanded?
- (A) It rises when interest rates rise, because the return from holding money increases.
 - (B) It falls when interest rates rise, because the opportunity cost of holding money increases.
 - (C) It remains constant when interest rates rise, as long as inflation remains constant.
 - (D) It rises when interest rates rise, as long as inflation is declining.
 - (E) It falls when the money supply increases, as long as inflation remains constant.
36. Which of the following would be a current account transaction?
- (A) India buys \$10 billion of new United States Treasury bonds.
 - (B) A United States firm buys 5 percent of the stock of another United States firm.
 - (C) A United States firm builds a new factory in Kenya.
 - (D) A United States firm sells \$500 million of its products to a Chinese company.
 - (E) The United States buys \$8 billion worth of euros.
37. Which of the following will most likely occur if a government adopts an annually balanced budget rule that requires the government to eliminate any deficits or surpluses?
- (A) Unemployment will be eliminated and prices will be stable.
 - (B) The national debt will increase.
 - (C) Business cycles will become more stable.
 - (D) The automatic stabilizing effect of fiscal policy will be eliminated.
 - (E) The government will be forced to spend less when there are surpluses.
38. Which of the following changes would cause an economy's aggregate demand curve to shift to the right?
- (A) An increase in spending on imports
 - (B) An increase in autonomous consumption spending
 - (C) An increase in interest rates
 - (D) A decrease in the money supply
 - (E) A decrease in the overall price level in the economy

39. In the measurement of gross domestic product, investment includes spending by
- (A) businesses on capital goods and changes in inventories
 - (B) businesses on stocks, bonds, and other financial assets
 - (C) individual households on stocks, bonds, and other financial assets
 - (D) the federal government to purchase bonds issued by the Federal Reserve
 - (E) the Federal Reserve to buy government bonds
40. Which of the following statements concerning economic growth is true?
- (A) If the population is growing faster than potential output, real gross domestic product per capita will definitely increase.
 - (B) With long-run economic growth, there is an increase in aggregate supply.
 - (C) The gap between rich and poor must widen with long-run economic growth.
 - (D) Increasing potential output necessarily increases the economic welfare of the average citizen.
 - (E) Long-run economic growth is only possible with demand management policies.
41. If the economy was in a severe recession, the most expansionary fiscal policy would be to
- (A) decrease both personal income taxes and government spending by equal amounts
 - (B) decrease both the reserve requirement and government spending by the same proportion
 - (C) decrease personal income taxes and increase government spending by equal amounts
 - (D) increase the money supply and increase government spending by the same proportion
 - (E) increase social security taxes and increase government spending by equal amounts
42. Which of the following would best explain an inward shift of the production possibilities curve?
- (A) An increase in the labor-force participation rate
 - (B) An increase in the rate of savings
 - (C) A decrease in the quantity of inputs required to produce a unit of output
 - (D) A decrease in the quality of human capital
 - (E) A decrease in the government's budget deficit that leads to lower real interest rates
43. Assume that the economy is in equilibrium. If aggregate demand increases, nominal interest rates and bond prices will most likely change in which of the following ways?
- | <u>Nominal Interest Rates</u> | <u>Bond Prices</u> |
|-------------------------------|--------------------|
| (A) Increase | Increase |
| (B) Increase | Decrease |
| (C) Increase | Not change |
| (D) Decrease | Increase |
| (E) Decrease | Decrease |
44. Which of the following would most likely stimulate economic growth?
- (A) Decreased savings
 - (B) Decreased wages
 - (C) Increased transfer payments
 - (D) Increased personal income taxes
 - (E) Technological progress

Section I

45. If a French firm buys computers from the United States, there would be an increase in which of the following in the foreign exchange market?

- (A) Demand for United States dollars and supply of euros
- (B) Demand for both United States dollars and euros
- (C) Supply of United States dollars and demand for euros
- (D) Supply of both United States dollars and euros
- (E) International value of the euro relative to the United States dollar

46. If the Federal Reserve pursues a contractionary monetary policy, output and the price level will change in which of the following ways in the short run?

<u>Output</u>	<u>Price Level</u>
(A) Increase	Increase
(B) Increase	No change
(C) Increase	Decrease
(D) Decrease	Decrease
(E) Decrease	Increase

47. If the nominal gross domestic product (GDP) of the nation of Hypothetica increased in 2007 relative to the previous year, it must be true that in Hypothetica in 2007

- (A) both the price level and the real GDP have increased
- (B) neither the price level nor the real GDP has increased
- (C) the price level increased by a larger percentage than did the real GDP
- (D) the price level increased by a smaller percentage than did the real GDP
- (E) the price level and/or the real GDP has increased

48. A decrease in the prices of inputs will cause which of the following to occur in the short run?

- (A) An increase in the aggregate demand and an increase in the price level
- (B) A decrease in the aggregate demand and an increase in the price level
- (C) An increase in the short-run aggregate supply and a decrease in the price level
- (D) An increase in the short-run aggregate supply and an increase in the price level
- (E) A decrease in the short-run aggregate supply and a decrease in the price level

49. Which of the following best describes human capital?

- (A) The number of workers in the labor force
- (B) The physical capital used by workers
- (C) The financial assets owned by workers
- (D) The training and education of workers
- (E) The spending by business for worker recruitment

50. Which of the following is an example of foreign direct investment?

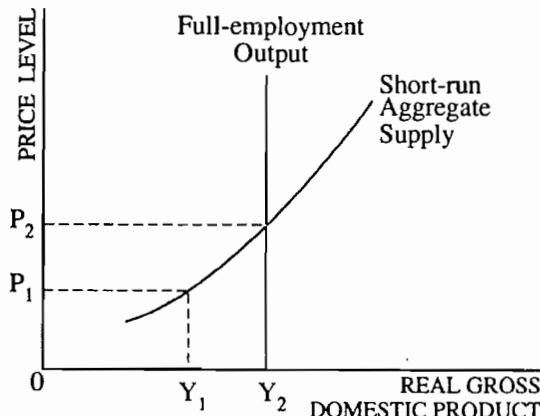
- (A) A United States automobile manufacturer building a steel plant in Russia
- (B) A United States citizen purchasing corporate bonds issued by a French manufacturing firm
- (C) A Mexican citizen purchasing United States Treasury bills
- (D) The Federal Reserve purchasing Japanese yen
- (E) Immigrant workers in the United States sending money to their native country

51. Which of the following is true of the long-run Phillips curve?

- (A) It shows there is a trade-off between unemployment and inflation.
- (B) It is positively sloped when the inflation rate exceeds the unemployment rate.
- (C) It is vertical at the natural rate of unemployment.
- (D) It shifts to the right if aggregate demand increases.
- (E) It is created by an adverse supply shock.

52. Gross domestic product has been criticized as a measure of well-being because it fails to take into account which of the following?

- (A) The distribution of income
- (B) The value of services
- (C) The value of intermediate goods
- (D) The value of financial transactions and sales of used items
- (E) The value of government services



53. The graph above shows the macroeconomic conditions of Wattsonia. Many economists estimate that the natural rate of unemployment is 6 percent. If this is true and the current rate of unemployment is 5.1 percent, in what range of real gross domestic product is the economy currently producing?

- (A) Less than Y_1
- (B) At Y_1
- (C) At Y_2
- (D) Greater than Y_1 and less than Y_2
- (E) Greater than Y_2

54. Expansionary monetary policy can affect the economy through which of the following chains of events?

- (A) Increasing the discount rate lowers the real interest rate, which raises investment.
- (B) Reducing taxes lowers the discount rate, which raises consumption.
- (C) Increasing government expenditure lowers the interest rate, which raises investment.
- (D) Increasing the reserve requirement decreases the interest rate, which increases investment.
- (E) Buying bonds increases the money supply, which lowers the interest rate.

55. If the real interest rates in the United States rise relative to rates in other countries, what will happen to the international value of the United States dollar and United States net exports?

<u>Value of the Dollar</u>	<u>Net Exports</u>
(A) Depreciate	Increase
(B) Depreciate	Decrease
(C) Depreciate	No change
(D) Appreciate	Decrease
(E) Appreciate	Increase

56. Which of the following changes will have the smallest expansionary effect on aggregate demand in the short run?

- (A) An increase in exports of \$100
- (B) An increase in government spending of \$100
- (C) A decrease in taxes of \$100
- (D) A decrease in imports of \$100
- (E) A decrease in savings of \$100

Section I

57. A leftward shift of the long-run aggregate supply curve is most likely consistent with an improvement in a country's standard of living if

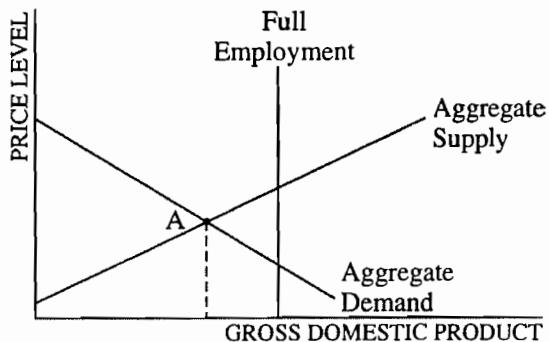
- (A) prices fall
- (B) depreciation increases
- (C) population decreases
- (D) taxes decrease
- (E) imports decline

58. Stagflation is caused by

- (A) an increase in imports
- (B) an increase in aggregate demand
- (C) a decrease in aggregate demand
- (D) a decrease in aggregate supply
- (E) an increase in aggregate supply

59. The required reserve ratio is 0.2 and the Federal Reserve sells \$1 million in securities. If there are no leakages and banks do not hold excess reserves, then which of the following is the change in the money supply?

- (A) An increase of \$1 million
- (B) An increase of \$1.2 million
- (C) An increase of \$5 million
- (D) A decrease of \$1.2 million
- (E) A decrease of \$5 million



60. The economy of a country is currently in equilibrium at point A in the diagram above. If the government does nothing and wages are flexible, which of the following will most likely occur in the long run?

- (A) Falling wages will shift the aggregate demand curve to the right, producing full employment.
- (B) Rising wages will shift the aggregate demand curve to the right, producing full employment.
- (C) The economy will remain at point A.
- (D) Rising wages will shift the aggregate supply curve to the right, producing full employment.
- (E) Falling wages will shift the aggregate supply curve to the right, producing full employment.

END OF SECTION I

**IF YOU FINISH BEFORE TIME IS CALLED, YOU MAY
CHECK YOUR WORK ON THIS SECTION.**

DO NOT GO ON TO SECTION II UNTIL YOU ARE TOLD TO DO SO.

AP® Macroeconomics Exam

SECTION II: Free-Response Questions

2010

DO NOT BREAK THE SEAL ON THIS BOOKLET UNTIL YOU ARE TOLD TO DO SO.

At a Glance

Total Time
1 hour
Number of Questions
3
Percent of Total Score
33.3%
Writing Instrument
Pen with black or dark blue ink

Reading Period

Time
10 minutes. Use this time to read the questions and plan your answers.

Writing Period

Question 1
Suggested Time
25 minutes
Percent of Section II Score
50%
Question 2
Suggested Time
12.5 minutes
Percent of Section II Score
25%
Question 3
Suggested Time
12.5 minutes
Percent of Section II Score
25%

IMPORTANT Identification Information

PLEASE PRINT WITH PEN:

1. First two letters of your last name

First letter of your first name

2. Date of birth

<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
Month	Day	Year	

3. Six-digit school code

<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
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4. Unless I check the box below, I grant the College Board the unlimited right to use, reproduce, and publish my free-response materials, both written and oral, for educational research and instructional purposes. My name and the name of my school will not be used in any way in connection with my free-response materials. I understand that I am free to mark "No" with no effect on my score or its reporting.

No, I do not grant the College Board these rights.

Instructions

The questions for Section II are printed in the green insert. You may use the green insert to organize your answers and for scratch work, but you must write your answers in the pink Section II booklet. No credit will be given for any work written in the insert.

The proctor will announce the beginning and end of the reading period. You are advised to spend the 10-minute period reading the questions and planning your answers to the questions. Do NOT begin writing in the pink booklet until the proctor tells you to do so. You may not use colored pens or pencils in drawing graphs or diagrams.

Write clearly and legibly. Number each answer as the question is numbered in the exam. Begin the answer to each question on a new page. Do not skip lines. Cross out any errors you make; crossed-out work will not be scored.

Manage your time carefully. You may proceed freely from one question to the next. You may review your responses if you finish before the end of the exam is announced.



Minimum 20% post-consumer waste

Section II**MACROECONOMICS****Section II****Planning Time—10 minutes****Writing Time—50 minutes**

Directions: You have 50 minutes to answer all three of the following questions. It is suggested that you spend approximately half your time on the first question and divide the remaining time equally between the next two questions. In answering the questions, you should emphasize the line of reasoning that generated your results; it is not enough to list the results of your analysis. Include correctly labeled diagrams, if useful or required, in explaining your answers. A correctly labeled diagram must have all axes and curves clearly labeled and must show directional changes. Use a pen with black or dark blue ink.

1. Assume that the United States economy is currently in long-run equilibrium.
 - (a) Draw a correctly labeled graph of aggregate demand and aggregate supply and show each of the following.
 - (i) The long-run aggregate supply curve
 - (ii) The current equilibrium output and price levels, labeled as Y_E and PL_E , respectively
 - (b) Assume that the government increases spending on national defense without raising taxes.
 - (i) On your graph in part (a), show how the government action affects aggregate demand.
 - (ii) How will this government action affect the unemployment rate in the short run? Explain.
 - (c) Assume that the economy adjusts to a new long-run equilibrium after the increase in government spending.
 - (i) How will the short-run aggregate supply curve in the new long-run equilibrium compare with that in the initial long-run equilibrium in part (a)? Explain.
 - (ii) On your graph in part (a), label the new long-run equilibrium price level as PL_2 .
 - (d) In order to finance the increase in government spending on national defense from part (b), the government borrows funds from the public. Using a correctly labeled graph of the loanable funds market, show the effect of the government's borrowing on the real interest rate.
 - (e) Given the change in the real interest rate in part (d), what is the impact on each of the following?
 - (i) Investment
 - (ii) Economic growth rate. Explain.
2. A drop in credit card fees causes people to use credit cards more often for transactions and demand less money.
 - (a) Using a correctly labeled graph of the money market, show how the nominal interest rate will be affected.
 - (b) Given the interest rate change in part (a), what will happen to bond prices in the short run?
 - (c) Given the interest rate change in part (a), what will happen to the price level in the short run? Explain.
 - (d) Identify an open-market operation the Federal Reserve could use to keep the nominal interest rate constant at the level that existed before the drop in credit card fees. Explain.

GO ON TO THE NEXT PAGE.

3. A United States firm sells \$10 million worth of goods to a firm in Argentina, where the currency is the peso.
- (a) How will the transaction above affect Argentina's aggregate demand? Explain.
 - (b) Assume that the United States current account balance with Argentina is initially zero. How will the transaction above affect the United States current account balance? Explain.
 - (c) Using a correctly labeled graph of the foreign exchange market for the United States dollar, show how a decrease in the United States financial investment in Argentina affects each of the following.
 - (i) The supply of United States dollars
 - (ii) The value of the United States dollar relative to the peso
 - (d) Suppose that the inflation rate is 3 percent in the United States and 5 percent in Argentina. What will happen to the value of the peso relative to the United States dollar as a result of the difference in inflation rates? Explain.

STOP

END OF EXAM

Chapter III: Answers to the 2010 AP Macroeconomics Exam

■ Section I: Multiple Choice

- Section I Answer Key and Percent Answering Correctly
- Analyzing Your Students' Performance on the Multiple-Choice Section
- Diagnostic Guide for the 2010 AP Macroeconomics Exam

■ Section II: Free Response

- Comments from the Chief Reader
- Scoring Guidelines, Sample Student Responses and Commentary

Section I: Multiple Choice

Listed below are the correct answers to the multiple-choice questions, the percent of AP students who answered each question correctly by AP score, and the total percent answering correctly.

Section I Answer Key and Percent Answering Correctly

Item No.	Correct Answer	Percent Correct by Score					Total Percent Correct
		5	4	3	2	1	
1	E	94	91	88	84	71	84
2	B	100	99	98	97	90	96
3	C	97	91	87	83	69	83
4	C	93	81	71	61	44	67
5	A	99	94	83	69	38	73
6	A	97	85	72	63	52	71
7	D	97	91	85	79	66	82
8	C	98	91	83	75	59	79
9	B	100	97	90	78	43	77
10	C	98	95	91	88	78	89
11	C	93	74	55	39	24	53
12	B	86	74	67	61	54	66
13	A	86	73	64	57	38	60
14	B	73	63	61	60	47	59
15	D	99	97	94	89	68	87
16	A	70	42	29	21	17	33
17	D	96	90	84	77	56	78
18*	-	-	-	-	-	-	-
19	C	96	81	62	48	30	60
20	D	96	91	84	78	57	78
21	A	87	80	75	69	51	70
22	C	93	78	66	54	32	61
23	D	99	96	88	75	40	75
24	A	97	87	73	57	29	64
25	A	91	75	59	46	25	55

*Although 60 multiple-choice items were administered in Section I, item 18 was not used in scoring.

Item No.	Correct Answer	Percent Correct by Score					Total Percent Correct
		5	4	3	2	1	
26	C	81	73	66	57	37	60
27	B	97	86	69	52	26	62
28	B	96	87	77	62	32	67
29	D	97	90	83	74	48	75
30	C	67	53	47	42	31	45
31	B	76	58	46	37	25	45
32	B	71	46	32	22	13	34
33	B	95	83	72	63	41	67
34	D	58	35	31	29	19	32
35	B	75	56	45	39	30	46
36	D	72	44	29	21	17	33
37	D	61	43	36	32	21	36
38	B	95	82	66	49	27	60
39	A	95	83	69	54	27	61
40	B	88	70	54	46	32	55
41	C	91	87	79	66	36	68
42	D	96	84	69	54	25	61
43	B	35	18	15	14	15	18
44	E	97	91	85	80	56	79
45	A	96	87	78	70	44	71
46	D	92	72	51	36	18	49
47	E	81	54	37	28	19	40
48	C	98	92	81	67	37	71
49	D	73	56	46	37	22	43
50	A	55	37	30	27	22	32

continued on the next page

Section I Answer Key and Percent Answering Correctly (continued)

Item No.	Correct Answer	Percent Correct by Score					Total Percent Correct
		5	4	3	2	1	
51	C	95	83	66	51	25	60
52	A	79	59	48	36	22	45
53	E	84	61	42	28	11	41
54	E	98	87	68	47	18	59
55	D	91	70	51	37	20	50

Item No.	Correct Answer	Percent Correct by Score					Total Percent Correct
		5	4	3	2	1	
56	C	69	51	34	23	15	36
57	C	83	59	43	32	19	43
58	D	95	77	51	33	18	51
59	E	74	45	25	15	6	29
60	E	79	46	24	14	8	31

Analyzing Your Students' Performance on the Multiple-Choice Section

If you give your students the 2010 exam for practice, you may want to analyze the results to find overall strengths and weaknesses in their understanding of AP Macroeconomics. The following diagnostic worksheet will help you do this. You are permitted to photocopy and distribute it to your students for completion.

1. In each section, students should insert a check mark for each correct answer.
2. Add together the total number of correct answers for each section.

3. To compare the student's number of correct answers for each section with the average number correct for that section, copy the number of correct answers to the "Number Correct" table at the end of the Diagnostic Guide.

In addition, under each item, the percent of AP students who answered correctly is shown, so students can analyze their performance on individual items. This information will be helpful in deciding how students should plan their study time. Please note that one item may appear in several different categories, as questions can cross over different topics.

Diagnostic Guide for the 2010 AP Macroeconomics Exam

Economic Growth (Average number correct = 3.0)

Question #	1	40	44	49	57
Correct/Incorrect					
Percent of Students Answering Correctly	84	55	79	43	43

International Trade and Finance (Average number correct = 4.7)

Question #	2	14	24	33	36	45	50	55
Correct/Incorrect								
Percent of Students Answering Correctly	96	59	64	67	33	71	32	50

Basic Concepts (Average number correct = 4.4)

Question #	3	10	15	17	30	42
Correct/Incorrect						
Percent of Students Answering Correctly	83	89	87	78	45	61

Economic Measurements (Average number correct = 5.6)

Question #	4	7	20	22	25	29	39	47	52
Correct/Incorrect									
Percent of Students Answering Correctly	67	82	78	61	55	75	61	40	45

Policy, Inflation and Unemployment (Average number correct = 7.4)

Question #	5	9	12	21	26	31	34	37	41	46	51	54	58
Correct/Incorrect													
Percent of Students Answering Correctly	73	77	66	70	60	45	32	36	68	49	60	59	51

Money and Banking (Average number correct = 4.8)

Question #	6	11	13	16	19	23	32	35	43	59
Correct/Incorrect										
Percent of Students Answering Correctly	71	53	60	33	60	75	34	46	18	29

Diagnostic Guide for the 2010 AP Macroeconomics Exam (continued)

National Income Determination (Average number correct = 4.4)

Question #	8	27	28	38	48	53	56	60
Correct/Incorrect								
Percent of Students Answering Correctly	79	62	67	60	71	41	36	31

Number Correct

	Economic Growth	International Trade and Finance	Basic Concepts	Economic Measurements	Policy, Inflation and Unemployment	Money and Banking	National Income Determination
Number of Questions	5	8	6	9	13	10	8
Average Number Correct	3.0 (60.0%)	4.7 (58.8%)	4.4 (73.3%)	5.6 (62.2%)	7.4 (56.9%)	4.8 (48.0%)	4.4 (55.0%)
My Number Correct							

Section II: Free Response

Comments from the Chief Reader

David Anderson

Department of Economics

Centre College

Danville, Kentucky

The free-response section of the 2010 AP Macroeconomics Exam consists of three questions: two short-answer questions and one long-answer question, and comprises one third of the composite score.

All free-response questions attempt to duplicate the skills and content knowledge required in a college-level introductory course in macroeconomics. These questions give students the opportunity to demonstrate their knowledge and understanding of macroeconomics principles, methodology and analyses.

Scoring Guidelines, Sample Student Responses and Commentary

The answers presented on the following pages are actual student responses to the free-response questions on the 2010 AP Macroeconomics Exam. The students gave permission to have their work reproduced at the time they took the exam. These responses were read and scored by the Table Leaders and Readers assigned to each particular question during the AP Reading in June 2010. The actual scores that these student responses earned, as well as a brief explanation of why, are indicated.

Question 1 — Overview

This question determined students' ability to work with models of aggregate demand–aggregate supply and loanable funds. Part (a) asked students to draw an aggregate demand–aggregate supply diagram to show an economy in long-run equilibrium. Part (b) determined whether students knew the effect of an increase in government spending on aggregate demand and the unemployment rate. Part (c) tested for understanding of the self-adjustment process for aggregate supply. Part (d) asked students to draw and manipulate a graph of the loanable funds market. Part (e) required students to identify the relationship between real interest rates, investment and economic growth.

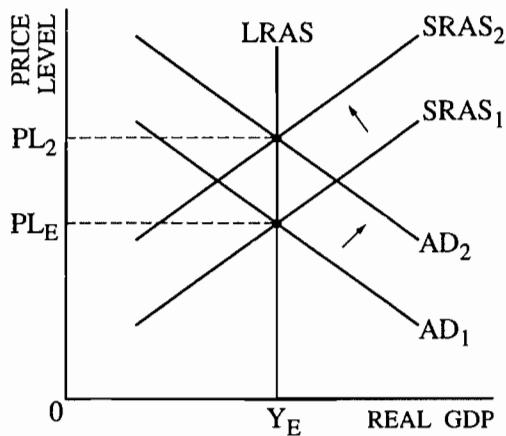
The mean score on this question was 4.75, almost 48 percent of the maximum possible score of 10 points. Students performed relatively well on parts (a), (b) and (d), and had the most difficulty with the explanation of the self-adjustment of aggregate supply, in part (c), and the explanation of how the increase in interest rates affects the economic growth rate, in part (e).

Common omissions included (1) discussion of input prices driving the self-adjustment process in the aggregate demand–aggregate supply model; and (2) mention of the role of slower capital formation as a link between higher interest rates and slower economic growth.

Teachers should emphasize to students the need to understand why curves in graphs shift the way they do and to explain every step in a sequence between cause and effect. Many students seemed to know what the graphs should look like but could not convey the reasons for shifts and other changes. Also, many students provided explanations that missed key points. For each assertion within an explanation, students should ask themselves if they have also indicated why that assertion is true.

Scoring Guidelines for Question 1

10 Points (2 + 2 + 2 + 2 + 2)



(a) 2 points:

- One point is earned for a correctly labeled graph with a downward-sloping AD curve, an upward-sloping SRAS curve, and the points PL_E and Y_E on the vertical and horizontal axes.
- One point is earned for showing a vertical LRAS curve at Y_E .

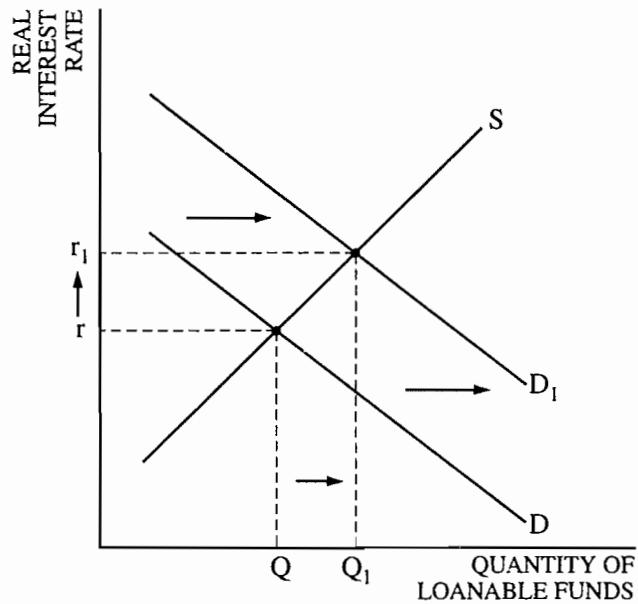
(b) 2 points:

- One point is earned for showing a rightward shift of the AD curve on the graph in part (a).
- One point is earned for stating that the unemployment rate would fall and explaining that this is because real output increases.

(c) 2 points:

- One point is earned for stating that the short-run aggregate supply curve will shift to the left and showing PL_2 correctly on the graph in part (a).
- One point is earned for explaining that the actual price level is higher than was expected or that wages and commodity prices adjust to the higher price level, causing the SRAS curve to shift to the left.

Scoring Guidelines for Question 1 (continued)



(d) 2 points:

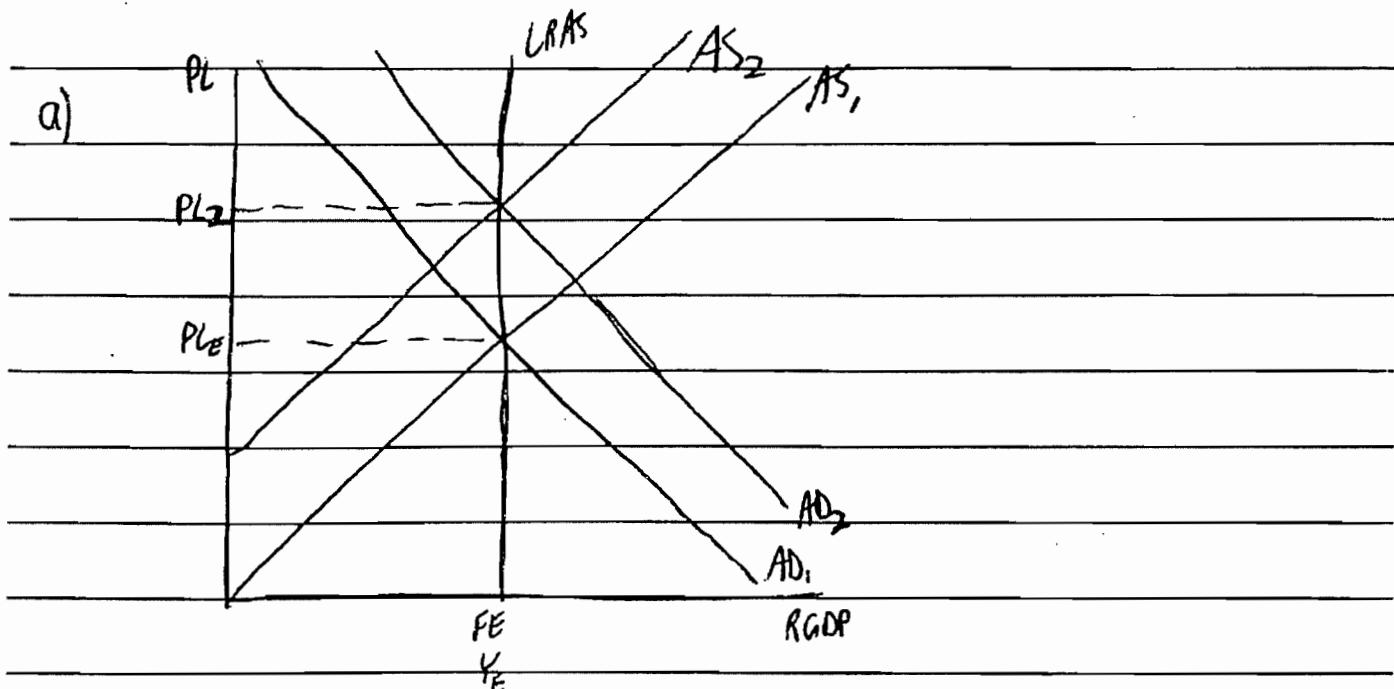
- One point is earned for a correctly labeled graph of the loanable funds market.
- One point is earned for showing a rightward shift of the demand curve, resulting in a higher interest rate OR a leftward shift of the supply curve, resulting in a higher interest rate.

(e) 2 points:

- One point is earned for stating that investment spending will decrease.
- One point is earned for explaining that the decrease in investment slows down capital formation, leading to a reduction in the economic growth rate.

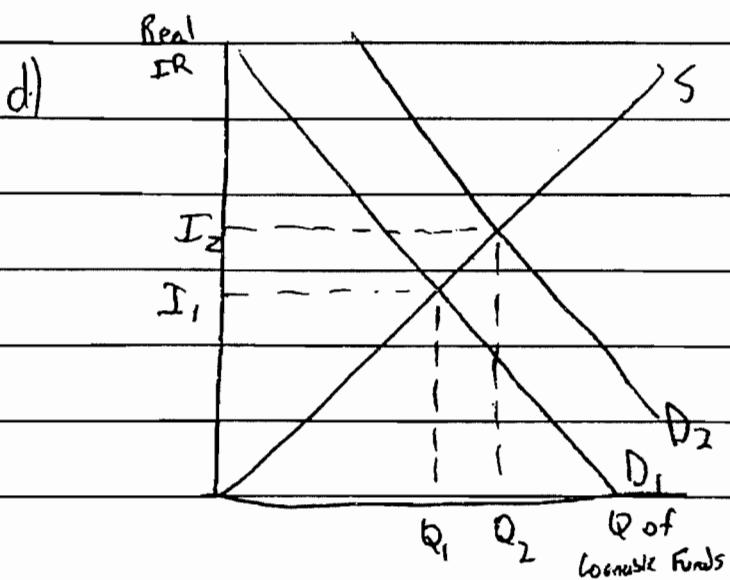
Sample Student Responses for Question 1

Student Response 1 (Score: 8)



b) (ii) The unemployment rate in the short run decreases due to the increase in output. Since you need more output, you need more people to produce it. Therefore decreasing the unemployment rate in the short run;

c) (i) The short run aggregate supply curve in the new equilibrium compared to the initial long run equilibrium is higher. The new equilibrium price is now also higher than the initial equilibrium price.

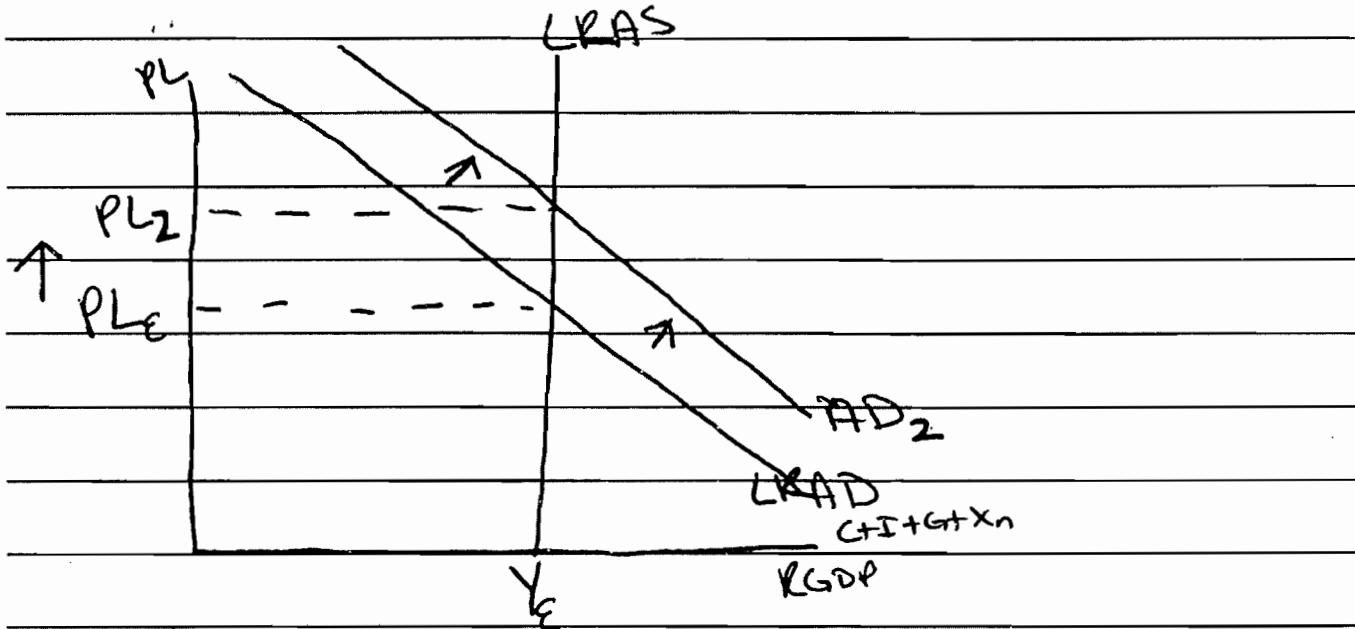


Due to the government's borrowing from the public, the real interest rate rises. This increase in the real interest rate will soon lead to the crowding out effect.

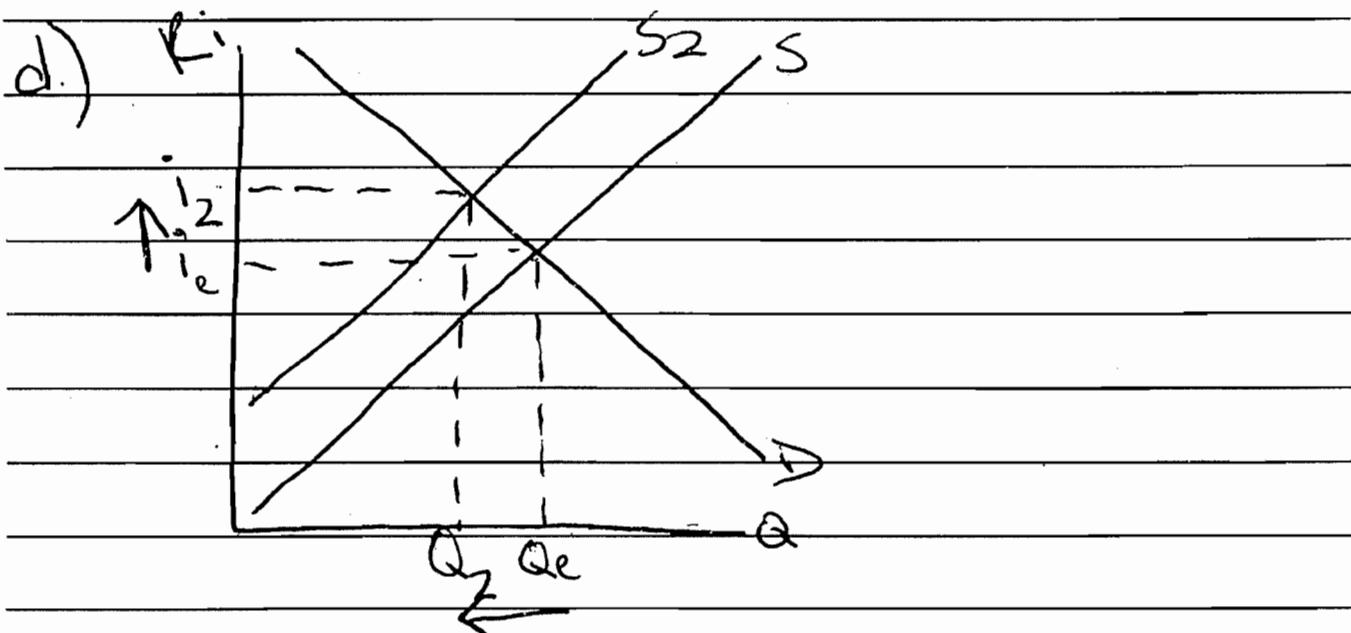
- e) (i) Due to the increase in real interest rates, the investment will decrease.
- (ii) Due to the increase in real interest rates, the economic growth rate also decreases because the decrease in investment causes decreases in RGDP which would then lower the RGDP per capita.

Commentary

The student lost 1 point in part (c) for not adequately explaining how the short-run aggregate supply curve in the new long-run equilibrium compares with that in the initial long-run equilibrium. The student lost 1 point in part (e) for failing to explain that the economic growth rate decreases because lower investment slows down capital formation.



- bii) The unemployment rate will decrease (\downarrow) because AD shifted to the right/increase.
- (1)
- c) The short run Aggregate supply curve would have stayed the same because AD shifted



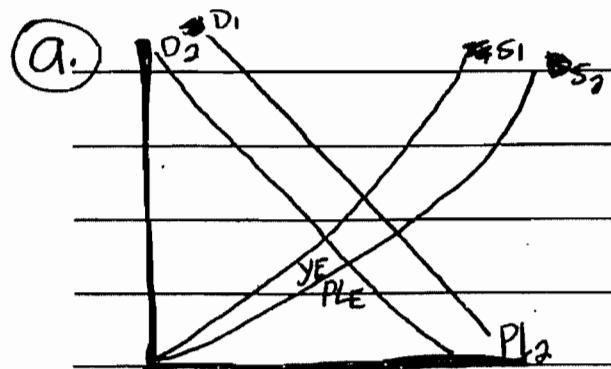
e) Investment will decrease

ii) Economic growth rate will also decrease
~~because investment decreases~~

Investment is a component of GDP so
 if investment decreases GDP decreases as
 well.

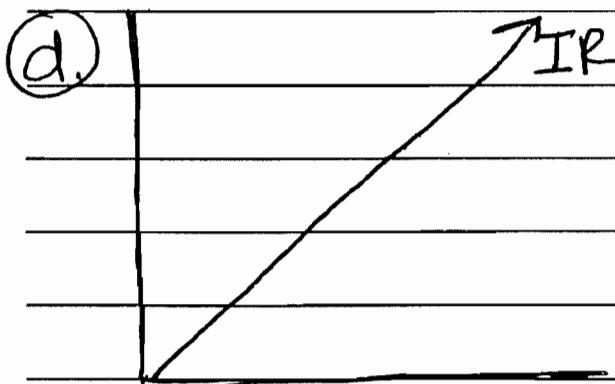
Commentary

The student lost 1 point in part (a) for failing to use the short-run aggregate supply curve to determine current equilibrium output and price levels. The student lost 1 point in part (b) for failing to explain that unemployment decreases because output increases. The student lost both points in part (c) for failing to indicate and explain how the short-run aggregate supply curve in the new long-run equilibrium compares with that in the initial long-run equilibrium. The student lost 1 point in part (e) for failing to explain that the economic growth rate decreases because lower investment slows down capital formation.



(b.) If there is a high demand for a product Unemployment will decrease, if the Demand for a product decreases then Unemployment will increase.

(c.) If the demand goes up & down that will effect the longrun of the graph economy.



(e.) People will not invest as much because interest rates will be higher. The interest rates are higher because of inflation & economic growth will expand because inflation, as a result of the higher interest rate, will improve.

Commentary

The student earned 1 point in part (e) for stating that "people will not invest as much because interest rates will be higher."

Question 2 — Overview

This question tested students' understanding of the money market, the influence of interest rates on other elements of the economy and the open-market tools of the Federal Reserve. Part (a) asked students to draw and manipulate the graph of the money market. Part (b) determined whether students understood the relationship between the interest rate and bond prices. Part (c) tested for an understanding of the relationship between the interest rate and the aggregate price level. Part (d) asked students to select the appropriate open-market operation to counteract a decrease in the interest rate.

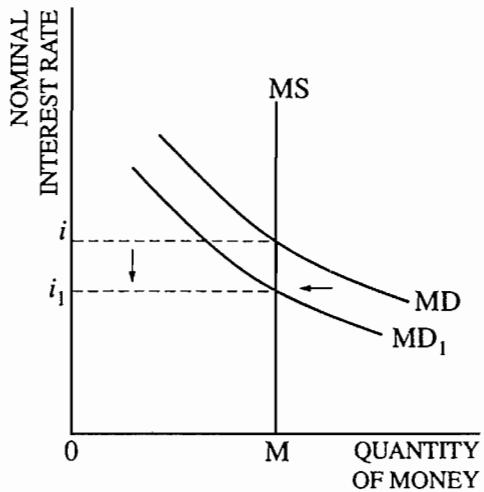
The mean score on this question was 2.65, which is 44 percent of the maximum possible score of 6 points. Students did very well in drawing the money market, shifting the money demand curve, and identifying the resulting effect on the price level. Students did not do so well in explaining how the interest rate decrease caused the price level to increase.

The most common error was to omit a mention that the lower interest rate encourages investment spending or consumption spending or both, and that with the rise in these components of aggregate demand, aggregate demand rises and brings about a higher equilibrium price level.

Teachers should stress to students that, when asked to explain a chain of events, they should be careful to include each step along the way and explain it in enough detail to clarify the reason for the subsequent change. Only about one-third of the students knew of the inverse relationship between interest rates and bond prices. Although the exam did not require an explanation of that concept, more study of the reasons for that relationship would help students remember it and be prepared to explain it if necessary.

Scoring Guidelines for Question 2

6 points (2 + 1 + 2 + 1)



(a) 2 points:

- One point is earned for a correctly labeled graph of the money market.
- One point is earned for showing a downward shift of the money demand curve and showing a decrease in the nominal interest rate using arrows, labels or dotted lines.

(b) 1 point:

- One point is earned for stating that bond prices will rise in the short run.

(c) 2 points:

- One point is earned for stating that the price level will rise.
- One point is earned for the explanation that the price level increases because aggregate demand increases, and aggregate demand increases because interest-sensitive spending (investment, consumption or net exports) increases.

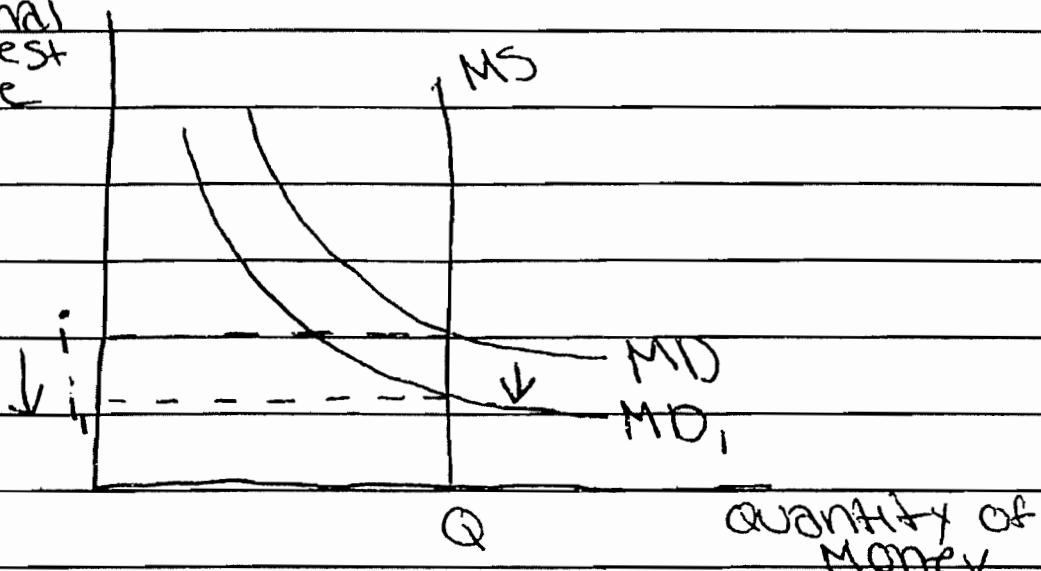
(d) 1 point:

- One point is earned for stating that the Fed could sell bonds to decrease the money supply and raise the interest rate back to the original level.

Sample Student Responses for Question 2

Student Response 1 (Score: 6)

A) nominal interest rate



B) If interest rates decrease, the price of bonds will ~~decrease~~ increase in the short-run.

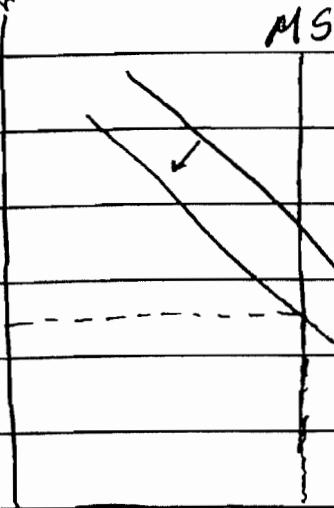
C) If the interest rate decreases, price levels will increase. Low interest rates are an incentive for people to invest and aggregate demand will shift right, increasing the price level.

d) To increase the interest rate, the Fed ~~government~~ should impose a contractionary monetary policy. An open market operation the Federal Reserve could use would be the sale of government bonds. This decreases the money supply and increases the interest rate.

Commentary

The student answered all parts correctly.

2. a) Nominal interest rates



If people demand less money the nominal interest rate will go down.

$MD \rightarrow$ Money demand
 $MS \rightarrow$ Money supply

Q of money $MD_1 \rightarrow$ Money demand after a drop of credit card fees.

b) In the short run the bond prices would be lower because there would be less interest rate.

c) The price levels would be higher because when the interest are low people use their ~~their~~ money to invest or spend and make the ~~go~~ aggregate Demand curve move to the ~~the~~ right and move prices up.

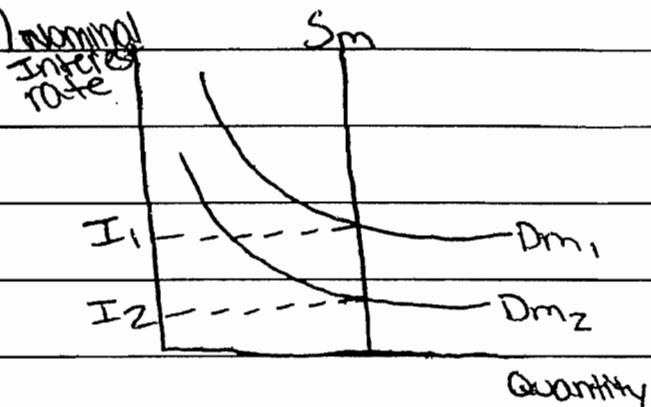
Student Response 2 (continued)

d) In this case the Federal Reserve should buy bonds to put money in the economy to make the people use it and ~~as~~ get to the equilibrium point again.

Commentary

The student lost 1 point in part (b) for incorrectly stating that the bond prices will decrease. The student lost 1 point in part (d) for incorrectly stating that "the Federal Reserve should buy bonds."

1) A)



- b) The price of bonds will decrease in the short run.
- c) The price level will remain the same because there is not a change in demand.
- d) The federal reserve could sell bonds because that would lower the interest rate because it increases the supply of money.

Commentary

The student lost 1 point in part (b) for incorrectly stating that an increase in the nominal interest rate would cause bond prices to decrease. The student lost 2 points in part (c) for incorrectly stating that an increase in the nominal interest rate would cause the price level to stay the same and for incorrectly stating that there would be no change in aggregate demand. The student lost 1 point in part (d) for incorrectly stating that if the Federal Reserve sold bonds the money supply would increase.

Question 3 — Overview

This question tested students' ability to work with the foreign exchange market and their understanding of the effects of international trade.

The mean score on this question was 2.60, which is 43 percent of the maximum possible score of 6 points. Students did well at identifying the effect of exports on the current account balance and the effect of an inflation rate differential on the exchange rate. However, they had difficulty explaining why the peso depreciated as a result of the inflation rate differential.

There were many problems with the labels on the exchange rate graph, particularly on the vertical axis, which would be most clearly labeled as "Pesos per Dollar." The shift in the dollar supply curve in part (c) presented a problem for almost two-thirds of the students as well. The most common omission was of an explanation in part (d) that the higher inflation rate in Argentina makes U.S. goods relatively appealing, thus increasing demand for dollars with which to purchase U.S. goods.

The foreign exchange market presented numerous problems for students, suggesting that there is considerable room for improvement in the understanding of this market. In many ways the workings of the foreign exchange market resemble those of the market for any good, and reminders of these similarities can bolster comfort with this model. It is also important for students to use explicit axis labels that are specific to the currencies involved, and the common errors with labels suggest that more practice with labeling would improve scores for many students.

Scoring Guidelines for Question 3

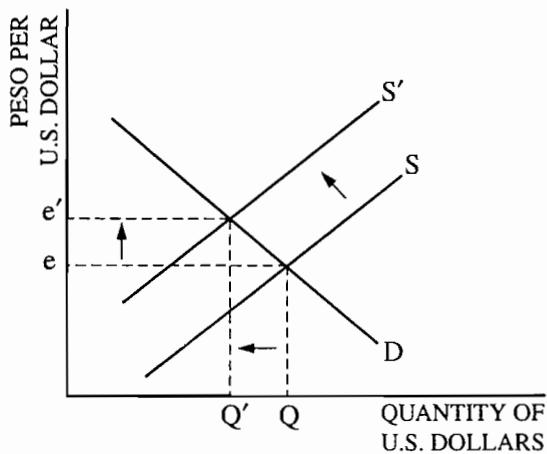
6 points (1 + 1 + 2 + 2)

(a) 1 point:

- One point is earned for stating that Argentina's aggregate demand will fall because the purchase results in increased imports *or* decreased net exports, which are components of aggregate demand.

(b) 1 point:

- One point is earned for stating that the United States current account will be in surplus or increases because exports are recorded as a credit in the current account.



(c) 2 points:

- One point is earned for a correctly labeled graph of the dollar market.
- One point is earned for showing a leftward shift of the supply curve and indicating that the value of the dollar against the peso increases, using arrows, labels or dotted lines.

(d) 2 points:

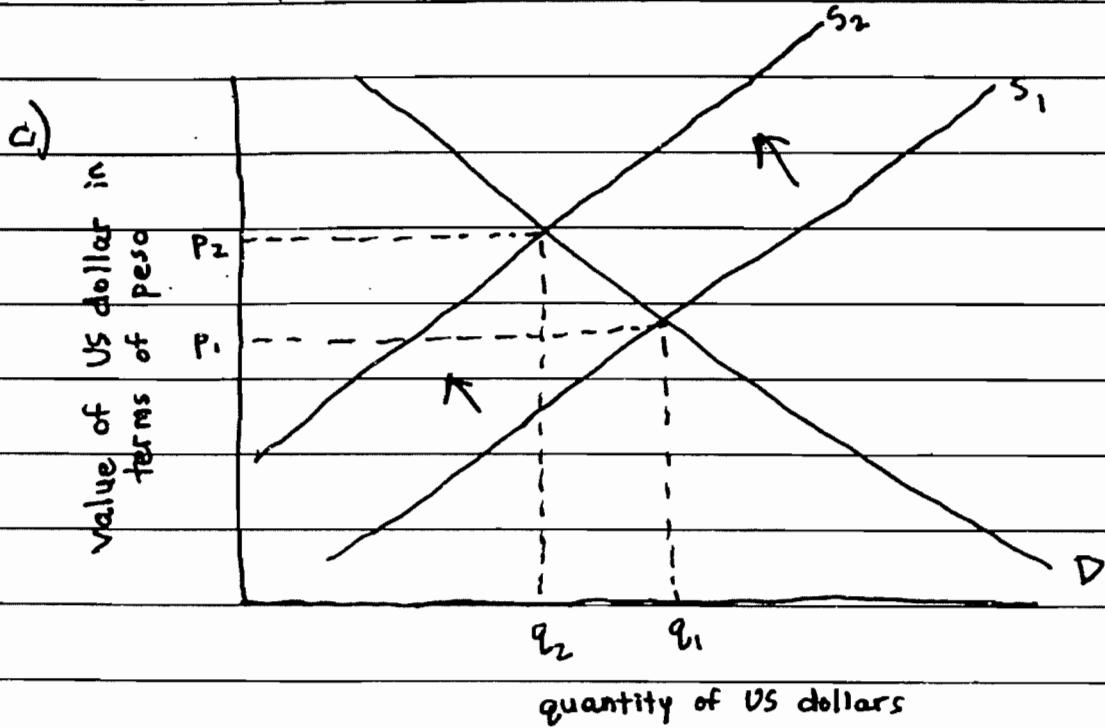
- One point is earned for stating that the peso will depreciate against the dollar.
- One point is earned for explaining that the higher inflation rate in Argentina makes U.S. goods less expensive (or more attractive) than Argentinean goods.

Sample Student Responses for Question 3

Student Response 1 (Score: 6)

a) Aggregate demand will decrease because there will be an increase in imports. This decreases net exports, which decrease aggregate demand.

b) This will increase the current account balance to \$10 million because \$10 million will flow into the United States due to the sale of the goods.



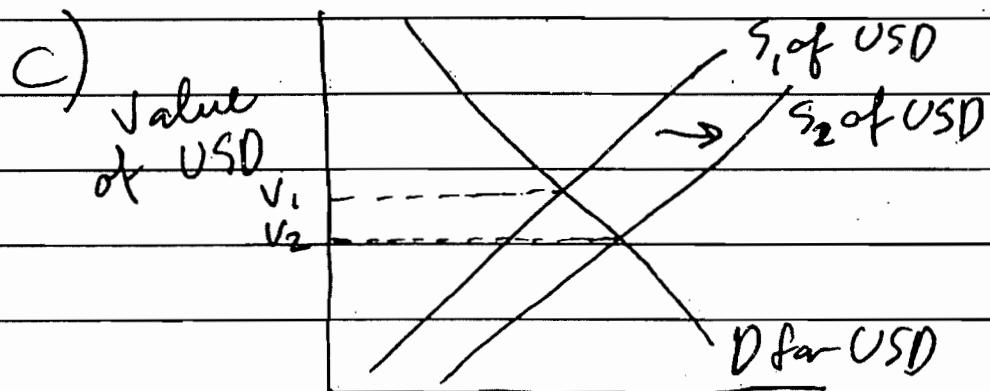
d) Due to a lower interest rate^{rate of inflation}, US goods will be relatively cheaper than goods in Argentina. Consumers in Argentina will thus increase the demand for US goods, appreciating the US dollar. This depreciates the value of the peso in comparison.

Commentary

The student answered all parts correctly.

a) Aggregate Demand in Argentina will decline, because their imports would increase relative to exports. Therefore, their net export component of Aggregate Demand would decrease.

b) It will increase, because the US will have gained \$10 million from the trade



Quantity of USD

The value of USD will decrease relative to the peso.

d) Because the peso is depreciating at a rate 2% higher than the USD, the peso's value will decrease relative to the USD.

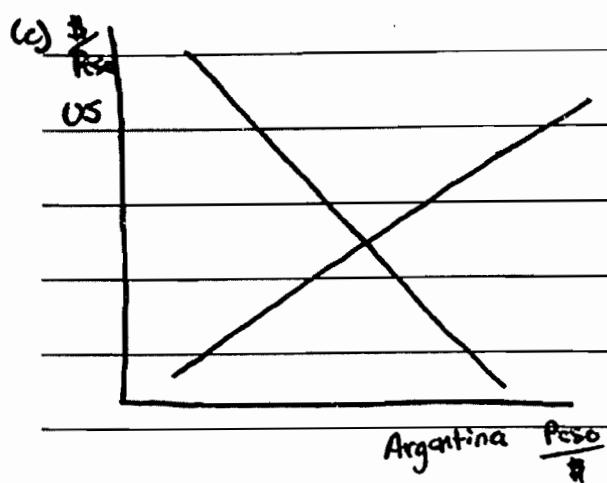
Commentary

The student lost 1 point in part (c) for incorrectly shifting the dollar supply curve to the right. The student lost 1 point in part (d) for failing to explain why the different inflation rates will cause the peso to decrease in value relative to the dollar.

Student Response 3 (Score: 1)

(a) The AD in Argentina will shift to the right because the American dollar is worth more than the peso and the government is buying goods.

(b) The United States Current account balance will be -\$10 million because we just sold them the products worth that much.



(i) The Supply of the U.S. Dollar will increase

(ii) The U.S. dollars value will increase relative to the peso.

(d) The peso's value will decrease relative to the U.S. dollar because the difference in inflation rate will cause the dollar's value to increase.

Commentary

The student earned 1 point in part (d) for stating that the "peso's value will decrease relative to the U.S. dollar."

Chapter IV: Statistical Information

- Table 4.1 — Section I and II Scores
- Table 4.2 — Scoring Worksheet
- Table 4.3 — Score Distributions
- Table 4.4 — Section I Scores and AP Scores
- How AP Scores Are Determined
- College Comparability Studies
- Reminders for All Score Report Recipients
- Reporting AP Scores
- Purpose of AP Scores

This chapter presents statistical information about overall student performance on the 2010 AP Macroeconomics Exam.

Table 4.1 shows and summarizes score distributions for each of the free-response questions. The scoring worksheet presented in Table 4.2 provides step-by-step instructions for calculating AP section and composite scores and converting composite scores to AP Exam scores. Table 4.3 includes distributions for the overall exam scores. The score distributions conditioned on multiple-choice performance presented in Table 4.4 are useful in estimating a student's AP Exam score given only the student's multiple-choice score.

College comparability studies, which are conducted to collect information for setting AP score cut-points, are briefly discussed in this chapter. In addition, the purpose and intended use of AP Exams are reiterated to promote appropriate interpretation and use of the AP Exam and exam results.

Table 4.1 — Section I and II Scores

For **Section I Answer Key and Percent Answering Correctly**, please see pages 31–32 of this book.

The following table shows the score distributions for AP students on each free-response question from the 2010 AP Macroeconomics Exam.

Score	Question 1		Question 2		Question 3	
	No. of Students	Percent at Score	No. of Students	Percent at Score	No. of Students	Percent at Score
10	1,416	1.82				
9	3,168	4.07				
8	5,945	7.64				
7	10,686	13.73				
6	12,954	16.64	5,505	7.07	2,369	3.04
5	10,852	13.94	10,985	14.11	8,585	11.03
4	9,172	11.78	9,820	12.61	12,547	16.12
3	7,235	9.29	13,310	17.10	15,573	20.00
2	5,089	6.54	14,199	18.24	18,422	23.66
1	4,190	5.38	11,241	14.44	11,404	14.65
0	4,766	6.12	7,624	9.79	4,454	5.72
No Response	2,377	3.05	5,166	6.64	4,496	5.78
Total Students	77,850		77,850		77,850	
Mean	4.75		2.66		2.60	
Standard Deviation	2.58		1.86		1.60	
Mean as Percent of Maximum Score	48		44		43	

Table 4.2 — Scoring Worksheet

Effective with the May 2011 Exam*, total scores on the multiple-choice section are based on the number of questions answered correctly. Points are not deducted for incorrect answers and no points are awarded for unanswered questions. The maximum possible weighted score on Section I is 60 points, and it accounts for two thirds of the maximum possible composite score.

Section I: Multiple Choice

$$\text{Number Correct} \quad \times 1.0169 = \text{Weighted Section I Score}$$

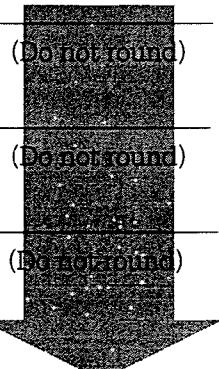
(out of 59) (Do not round)

Section II: Free Response

$$\begin{array}{l} \text{Question 1} \quad \text{_____} \times 1.5000 = \text{_____} \\ \qquad\qquad\qquad (\text{out of } 10) \end{array}$$

$$\begin{array}{l} \text{Question 2} \quad \text{_____} \times 1.2500 = \text{_____} \\ \qquad\qquad\qquad (\text{out of } 6) \end{array}$$

$$\begin{array}{l} \text{Question 3} \quad \text{_____} \times 1.2500 = \text{_____} \\ \qquad\qquad\qquad (\text{out of } 6) \end{array}$$



$$\text{Sum} = \text{_____}$$

Weighted
Section II Score
(Do not round)

AP Score Conversion Chart		
Macroeconomics		
Composite Score Range		AP Score
70–90		5
56–69		4
48–55		3
38–47		2
0–37		1

Composite Score

$$\text{Weighted Section I Score} + \text{Weighted Section II Score} = \text{Composite Score}$$

(Round to nearest whole number)



* Prior to the May 2011 Exam, a fraction of a point was deducted for each incorrect response on multiple-choice questions.

Table 4.3 — Score Distributions

More than 53 percent of the AP students who took this exam earned a qualifying score of 3 or above.

	Exam Score	Number of Students	Percent at Score
Extremely well qualified	5	10,312	13.25
Well qualified	4	19,643	25.23
Qualified	3	11,997	15.41
Possibly qualified	2	13,137	16.87
No recommendation	1	22,761	29.24
Total Number of Students		77,850	
Mean Score		2.76	
Standard Deviation		1.44	

Table 4.4 — Section I Scores and AP Scores

Due to the changes in multiple-choice scoring, the range of scores in Table 4.4 has changed, though the percentages remain the same.

For a given range of multiple-choice scores, this table shows the percentage of students receiving each AP score. If you have calculated the multiple-choice score (**Weighted Section I Score**) by using the formula shown in Table 4.2, you can use this table to figure out the most likely score that the student would receive based only on that multiple-choice score.

Multiple-Choice Score	AP Score					Total
	1	2	3	4	5	
52 to 60	0.0%	0.0%	0.0%	3.7%	96.3%	6.3%
44 to 51	0.0%	0.0%	1.8%	62.2%	36.0%	19.9%
36 to 43	0.1%	7.4%	42.1%	50.3%	0.1%	24.8%
28 to 35	18.4%	60.0%	20.8%	0.8%	0.0%	22.0%
20 to 27	88.9%	11.0%	0.1%	0.0%	0.0%	16.6%
0 to 19	99.9%	0.1%	0.0%	0.0%	0.0%	10.4%
Total	29.2%	16.9%	15.4%	25.2%	13.3%	100.0%

How AP Scores Are Determined

As described in Chapter II, the AP Macroeconomics Exam has two sections. Section I originally had 60 multiple-choice questions, but question 18 was not scored. As a result, this section has a score range from a minimum possible score of 0 to a maximum possible score of 59 points. Section II consists of three free-response questions. Question 1 has a score range from a minimum possible score of 0 to a maximum possible score of 10 points, and questions 2 and 3 have a possible score range of 0 to 6 points.

The scores on the different parts of the exam are combined to produce a composite score that ranges from a minimum possible score of 0 to a maximum possible score of 90 points. In calculating the composite scores, scores on different parts are multiplied by weights.

Composite scores are not released to students, schools or colleges. Instead, the composite scores are converted to scores on an AP 5-point scale and it is these scores that are reported. The process of calculating the composite score and converting it to an AP Exam score involves a number of steps that are shown in the Scoring Worksheet (Table 4.2) and described in detail here.

1. **The score on Section I is calculated.** Section I scores are calculated by totaling the number of correct answers. The maximum possible weighted score on Section I is 60 points, and it accounts for two thirds of the maximum possible composite score.
2. **The score on Section II is calculated.** The weights for questions in Section II are determined such that question 1 contributes 50 percent to the maximum possible weighted free-response score and questions 2 and 3 each contribute 25 percent. The weighted scores on the questions of Section II are summed to give the total weighted score for Section II. The maximum weighted score on Section II is 30 points, and it accounts for one third of the maximum possible composite score.
3. **AP Exam scores are calculated.** Composite scores are calculated by adding the weighted Section I and weighted Section II scores together. The AP Exam scores are calculated by comparing the composite scores to the four composite cut-scores selected during the score-setting process. A variety of information is available during the score-setting process to help determine the cut-scores corresponding to each AP score:
 - Statistical information based on test score equating
 - College/AP score comparability studies, if available
 - The Chief Reader's observations of students' free-response performance

- The distribution of scores on different parts of the exam

- AP score distributions from the past three years

See Table 4.3 for the score distributions for the 2010 AP Macroeconomics Exam.

If you are interested in more detailed information about this process, please visit AP Central (apcentral.collegeboard.com). There you will also find information about how the AP Exams are developed, how validity and reliability studies are conducted, and other data on all AP subjects.

College Comparability Studies

The Advanced Placement Program has conducted college grade comparability studies in all AP subjects. These studies have compared the performance of AP students with that of college students in related courses who have taken the AP Exam at the end of their course. In general, AP cut-points are selected so that the lowest AP 5 is equivalent to the average A in college, the lowest AP 4 is equivalent to the average B, and the lowest AP 3 is equivalent to the average C (see below).

AP Score	Average College Grade
5	A
4	B
3	C
2	D
1	

Research studies conducted by colleges and universities and by the AP Program indicate that AP students generally receive higher grades in advanced courses than do students who have taken the regular first-year courses at the institution. Colleges and universities are encouraged to periodically undertake such studies to establish appropriate policy for accepting AP scores and ensure that admissions and placement standards remain valid. It is critical to verify that admissions and placement measures established for a previous class continue for future classes. Summaries of several studies are available at AP Central. Also on the College Board Web site is the free Admitted Class Evaluation Service™ (<http://professionals.collegeboard.com/higher-ed/validity>) that can predict how admitted college students will perform at a particular institution generally and how successful they can be in specific classes.

Reminders for All Score Report Recipients

AP Exams are designed to provide accurate assessments of achievement. However, any exam has limitations, especially when used for purposes other than those intended. Presented here are some suggestions for teachers to aid in the use and interpretation of AP scores:

- AP Exams in different subjects are developed and evaluated independently of each other. They are linked only by common purpose, format and method of reporting results. Therefore, comparisons should not be made between scores on different AP Exams. An AP score in one subject may not have the same meaning as the same AP score in another subject, just as national and college standards vary from one discipline to another.
- Score reports are confidential. Everyone who has access to AP scores should be aware of the confidential nature of the scores and agree to maintain their security. In addition, school districts and states should not release data about high school performance without the school's permission.
- AP Exams are not designed as instruments for teacher or school evaluation. Many factors influence AP Exam performance in a particular course or school in any given year. Thus, differences in AP Exam performance should be carefully studied before being attributed to the teacher or school.
- Where evaluation of AP students, teachers or courses is desired, local evaluation models should be developed. An important aspect of any evaluation model is the use of an appropriate method of comparison or frame of reference to account for yearly changes in student composition and ability, as well as local differences in resources, educational methods, and socioeconomic factors.
- The AP Instructional Planning Report is sent to schools automatically and can be a useful diagnostic tool in reviewing course results. This report identifies areas of strength and weakness for the students in each AP course. The information may also provide teachers with guidance for course emphasis and student evaluation.
- Many factors can influence exam results. AP Exam performance can be affected by the degree of agreement between a course and the course defined in the relevant AP Course Description, use of different instructional methods, differences in emphasis or preparation on particular parts of the exam, differences in curriculum or differences in student background and preparation in comparison with the national group.

Reporting AP Scores

The results of AP Exams are disseminated in several ways to students, their secondary schools and the colleges they select:

- College and student score reports contain a cumulative record of all scores earned by the student on AP Exams during the current or previous years. These reports are sent in July. (School score reports are sent shortly thereafter.)
- Group results for AP Exams are available to AP teachers in the AP Instructional Planning Report mentioned previously. This report provides useful information comparing local student performance with that of the total group of students taking an exam, as well as details on different subsections of the exam.

Several other reports produced by the AP Program provide summary information on AP Exams:

- State, National and Canadian Reports show the distribution of scores obtained on each AP Exam for all students and for subsets of students broken down by gender and by ethnic group.
- The Program also produces a one-page summary of AP score distributions for all exams in a given year.

For information on any of the above, please call AP Services at 609-771-7300 or e-mail apexams@info.collegeboard.org.

Purpose of AP Scores

AP scores are intended to allow participating colleges and universities to award college credit, advanced placement or both to qualified students. In general, an AP score of 3 or higher indicates sufficient mastery of course content to allow placement in the succeeding college course, or credit for and exemption from a college course comparable to the AP course. Students seeking credit through their AP scores should note that each college, not the AP Program or the College Board, determines the nature and extent of its policies for awarding advanced placement, credit or both. Because policies regarding AP scores vary, students should consult the AP policy of individual colleges and universities. Students can find information in a college's catalog or Web site, or by using the AP Credit Policy search at www.collegeboard.org/ap/creditpolicy.

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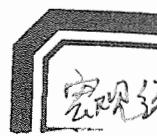
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