From the 2017 Administration

AP CollegeBoard

Microeconomics

Practice Exam

NOTE: This is a modified version of the 2017 AP Microeconomics Exam.

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Note: This publication shows the page numbers that appeared in the *2016–17 AP Exam Instructions* book and in the actual exam. This publication was not repaginated to begin with page 1.

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Exam Instructions

The following contains instructions taken from the *2016–17 AP Exam Instructions* book.

AP® Macroeconomics Exam

Regularly Scheduled Exam Date: Wednesday afternoon, May 10, 2017

Late-Testing Exam Date: Wednesday morning, May 17, 2017

AP® Microeconomics Exam

Regularly Scheduled Exam Date: Friday morning, May 12, 2017

Late-Testing Exam Date: Wednesday afternoon, May 17, 2017

Section I	**Total Time:** 1 hour 10 minutes Calculator not permitted **Number of Questions:** 60* **Percent of Total Score:** 66.67% **Writing Instrument:** Pencil required **The number of questions may vary slightly depending on the form of the exam.*
Section II	**Total Time:** 1 hour Calculator not permitted **Number of Questions:** 3 required free-response questions *(10-minute reading period, 50-minute writing period)* **Percent of Total Score:** 33.33% **Writing Instrument:** Pen with black or dark blue ink

What Proctors Need to Bring to This Exam

- Exam packets
- Answer sheets
- AP Student Packs
- *2016-17 AP Coordinator's Manual*
- This book — *AP Exam Instructions*
- AP Exam Seating Chart template
- School Code and Home-School/Self-Study Codes
- Pencil sharpener
- Container for students' electronic devices (if needed)
- Extra No. 2 pencils with erasers
- Extra pens with black or dark blue ink
- Lined paper
- Stapler
- Watch
- Signs for the door to the testing room
  - "Exam in Progress"
  - "Cell phones are prohibited in the testing room"

Macroeconomics

Before Distributing Exams: Check that the title on exam covers is **Macroeconomics**, and is printed in **blue** on the Section I exam booklet covers. (On any large-type or photo-enlarged exams, the exam title will be printed in black.) If there are any exam booklets with a different title, contact the AP coordinator immediately.

Microeconomics

Before Distributing Exams: Check that the title on all exam covers is **Microeconomics**, and is printed in **black**. If there are any exam booklets with a different title, contact the AP coordinator immediately.

SECTION I: Multiple Choice

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. Remember, you must complete a seating chart for this exam. See pages 325–326 for a seating chart template and instructions. See the *2016-17 AP Coordinator's Manual* for exam seating requirements (pages 51–54).

Macroeconomics

If you are giving the regularly scheduled exam, say:

It is Wednesday afternoon, May 10, and you will be taking the AP Macroeconomics Exam.

If you are giving the alternate exam for late testing, say:

It is Wednesday morning, May 17, and you will be taking the AP Macroeconomics Exam.

Microeconomics

If you are giving the regularly scheduled exam, say:

It is Friday morning, May 12, and you will be taking the AP Microeconomics Exam.

If you are giving the alternate exam for late testing, say:

It is Wednesday afternoon, May 17, and you will be taking the AP Microeconomics Exam.

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 *2016-17 Bulletin for AP Students and Parents*.

Macroeconomics

If you are giving a regular format AP Macroeconomics Exam, say:

Look at your exam packet and confirm that the exam title is "AP Macroeconomics" and is printed in blue on the Section I booklet cover. Raise your hand if your exam packet contains any title other than "AP Macroeconomics" and I will help you.

If you are giving a large-type or photo-enlarged AP Macroeconomics Exam, say:

Look at your exam packet and confirm that the exam title is "AP Macroeconomics" and is printed in black. Raise your hand if your exam packet contains any title other than "AP Macroeconomics" and I will help you.

Microeconomics

Say:

Look at your exam packet and confirm that the exam title is "AP Microeconomics" and is printed in black. Raise your hand if your exam packet contains any title other than "AP Microeconomics" and I will help you.

Once you confirm that all students have the correct exam, say:

You may now remove the shrinkwrap from 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. . . .

Carefully remove the AP Exam label found near the top left of your exam booklet cover. Now place it on page 1 of your answer sheet on the light blue box near the top right corner that reads "AP Exam Label."

If students accidentally place the exam label in the space for the number label or vice versa, advise them to leave the labels in place. They should not try to remove the label; their exam can still be processed correctly.

Read the statements on the front cover of Section I and look up when you have finished. . . .

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? . . .

Turn to the back cover of your exam booklet and read it completely. Look up when you have finished. . . .

Are there any questions? . . .

You will now take the multiple-choice portion of the exam. You should have in front of you the multiple-choice booklet and your answer sheet. You may never discuss the multiple-choice exam content at any time in any form with anyone, including your teacher and other students. If you disclose the multiple-choice exam content through any means, your AP Exam score will be canceled.

Open your answer sheet to page 2. You must complete the answer sheet using a No. 2 pencil only. Mark all of your responses beginning on page 2 of your answer sheet, one response per question. Completely fill in the circles. 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? . . .

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 _____. Check that 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, say:

There are 10 minutes remaining.

After 10 minutes, say:

Stop working. Close your booklet and put your answer sheet on your desk, face up. Make sure you have your AP number label and an AP Exam label on page 1 of your answer sheet. Sit quietly while I collect your answer sheets.

Collect an answer sheet from each student. Check that each answer sheet has an AP number label and an AP Exam label. After all answer sheets have been collected, say:

Now you must seal your exam booklet using the white seals you set aside earlier. Remove the white seals from the backing and press one on each area of your exam booklet cover marked "PLACE SEAL HERE." Fold each seal over the back cover. When you have finished, place the booklet on your desk, face up. I will now collect your Section I booklet. . . .

Collect a Section I booklet from each student. Check that each student has signed the front cover of the sealed Section I booklet.

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 10-minute break. All items you placed under your chair at the beginning of this exam must stay there, and you are not permitted to open or access them in any way. Leave your shrinkwrapped Section II packet on your desk during the break. You are not allowed to consult teachers, other students, notes, or textbooks during the break. You may not make phone calls, send text messages, check email, use a social networking site, or access any electronic or communication device. Remember, you may never discuss the multiple-choice exam content at any time in any form with anyone, including your teacher and other students. If you disclose the multiple-choice exam content through any means, your AP Exam score will be canceled. Are there any questions? . . .

You may begin your break. Testing will resume at _____.

SECTION II: Free Response

After the break, say:

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

You may now remove the shrinkwrap from the Section II packet, but do not open the exam booklet until you are told to do so. . . .

Read the bulleted statements on the front cover of the exam booklet. Look up when you have finished. . . .

Now take an AP number label from your Student Pack and place it on the shaded box. 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 statements on the front cover. . . .

Turn to the back cover and, using your pen, complete Item 1 under "Important Identification Information." Print the first two letters of your last name and the first letter of your first name in the boxes. Look up when you have finished. . . .

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

In Item 3, write the school code you printed on the front of your Student Pack in the boxes. . . .

Read Item 4. . . .

Are there any questions? . . .

I need to collect the Student Pack from anyone who will be taking another AP Exam. 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. . . .

Read the information on the back cover of the exam booklet. Do not open 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? . . .

The total Section II time is 1 hour. This includes a 10-minute reading period. The reading period is designed to provide you with time to develop thoughtful, well-organized responses. You are advised to take advantage of the reading period to plan what you will write. You may begin writing your exam responses before the reading period is over. You may make notes on page 3 and the pages that contain the exam questions, but your responses must be written on the designated lined pages. Are there any questions? . . .

You are responsible for pacing yourself and may proceed freely from one question to the next. You must write your answers in the Section II booklet using a pen with black or dark blue ink. You are not permitted to use other colored pens or pencils to draw graphs or diagrams. If you need more paper to complete your responses, raise your hand. At the top of each extra sheet of paper you use, be sure to write only:

- **your AP number, and**
- **the question number you are working on.**

Make sure to begin your response on the lined page directly following the first appearance of the question and continue your response on the additional lined pages that follow. Remember to write your answers on the lined pages provided for each question; only responses written on the lined pages will be scored.

You may now open the Section II booklet and begin the 10-minute reading period.

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

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

Note Start Time here _____. Note Stop Time here _____. Check that students are using pens and that they are writing their answers in their exam booklets. After 40 minutes, say:

There are 10 minutes remaining.

After 10 minutes, say:

Stop working and close your exam booklet. Place it on your desk, face up. . . .

If any students used extra paper for a question in the free-response section, have those students staple the extra sheet(s) to the first page corresponding to that question in their exam booklets. Complete an Incident Report. A single Incident Report may be completed for multiple students per exam subject per administration (regular or late testing) as long as all of the required information is provided. Include all exam booklets with extra sheets of paper in an Incident Report return envelope (see page 62 of the *2016-17 AP Coordinator's Manual* for complete details). Then say:

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

Collect a Section II booklet from each student. Check for the following:

- Exam booklet front cover: The student placed an AP number label on the shaded box and printed his or her initials and today's date.
- Exam booklet back cover: The student completed the "Important Identification Information" area.

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.

If you are giving the regularly scheduled exam, say:

You may not discuss or share the free-response exam content with anyone unless it is released on the College Board website in about two days. Your AP Exam score results will be available online in July.

If you are giving the alternate exam for late testing, say:

None of the content in this exam may ever be discussed or shared in any way at any time. Your AP Exam score results will be available online in 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. You will need the information on this card to view your scores and order AP score reporting services online.

Then say:

You are now dismissed.

Post-Exam Tasks

Be sure to give the completed seating chart to the AP coordinator. Schools must retain seating charts for at least six months (unless the state or district requires that they be retained for a longer period of time). Schools should not return any seating charts in their exam shipments unless they are required as part of an Incident Report.

The exam proctor should complete the following tasks if asked to do so by the AP coordinator. Otherwise, the AP coordinator must complete these tasks.

All exam materials must be placed in secure storage until they are returned to the AP Program after your school's last administration. Before storing materials, check the "School Use Only" section on page 1 of the answer sheet and:

- Fill in the appropriate section number circle in order to access a separate AP Instructional Planning Report (for regularly scheduled exams only) or subject score roster at the class section or teacher level. See "Post-Exam Activities" in the *2016-17 AP Coordinator's Manual*.
- Check your list of students who are eligible for fee reductions and fill in the appropriate circle on their registration answer sheets.

Student Answer Sheet for the Multiple-Choice Section

Use this section to capture student responses. (Note that the following answer sheet is a sample, and may differ from one used in an actual exam.)

AP Answer Sheet 2017

AP Number Label
(from Student Pack)

123456789

AP Exam Label
(from Section I Booklet)

CollegeBoard

COMPLETE THIS AREA AT EVERY EXAM. **USE NO. 2 PENCIL ONLY**

To maintain the security of the exam and the validity of my AP score, I will allow no one else to see the multiple-choice exam content. I will seal the multiple-choice booklet when asked to do so, and I will not discuss the exam content with anyone at any time after completing the section. I am aware of and agree to the AP Program's policies and procedures as outlined in the *2016-17 Bulletin for AP Students and Parents*, including using 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. Date

B. LEGAL NAME Omit apostrophes, Jr., II.

Legal Last Name — First 15 Letters | Legal First Name — First 12 Letters | MI

C. YOUR AP NUMBER

D. EXAM DATE Month Day

E. EXAM START TIME AM PM

F. MULTIPLE-CHOICE BOOKLET SERIAL NUMBER S

G. ONLINE PROVIDER CODE

H. AP EXAM I AM TAKING USING THIS ANSWER SHEET Exam Name: Form: Form Code:

792107

SCHOOL USE ONLY

Section Number (1) (2) (3) (4) (5) (6) (7) (8) (9)

Fee Reduction Granted (1) Option 1 (2) Option 2

COMPLETE THIS AREA ONLY ONCE.

I. AREA CODE AND PHONE NUMBER

INTERNATIONAL PHONE

J. SCHOOL YOU ATTEND

SCHOOL CODE | School Name | City | State | Country

K. DATE OF BIRTH

Month (Jan) (Feb) (Mar) (Apr) (May) (Jun) (Jul) (Aug) (Sep) (Oct) (Nov) (Dec) Day Year

L. SOCIAL SECURITY NUMBER (Optional)

M. COLLEGE TO RECEIVE YOUR AP SCORE REPORT

COLLEGE CODE

Using the college code listed in the AP Student Pack, indicate the **ONE** college that you want to receive your AP score report.

College Name | City | State | Country

N. CURRENT GRADE LEVEL

- Not yet in 9th grade
- 9th
- 10th
- 11th
- 12th
- No longer in high school

O. STUDENT SEARCH SERVICE®

Colleges and scholarship programs may request your information to inform you of educational opportunities and financial aid.

Would you like us to supply your information?

- Yes
- No

If you don't answer and previously chose to participate in this service, we will continue providing your information.

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Q4298/1-4

COMPLETE THIS AREA AT EACH EXAM (IF APPLICABLE).

P. SURVEY QUESTIONS — Answer the survey questions in the AP Student Pack. Do not put responses to exam questions in this section.

1	A B C D E F G H I	4	A B C D E F G H I	7	A B C D E F G H I
2	A B C D E F G H I	5	A B C D E F G H I	8	A B C D E F G H I
3	A B C D E F G H I	6	A B C D E F G H I	9	A B C D E F G H I

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

If this answer sheet is for the French Language and Culture, German Language and Culture, Italian Language and Culture, Spanish Language and Culture, or Spanish Literature and Culture 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

QUESTIONS 1–75

Indicate your answers to the exam questions in this section (pages 2 and 3). Mark only one response per question for Questions 1 through 120. If a question has only four answer options, do not mark option E. Answers written in the multiple-choice booklet will not be scored.

COMPLETE MARK ● EXAMPLES OF INCOMPLETE MARKS 

You must use a No. 2 pencil and marks must be complete. Do not use a mechanical pencil. It is very important that you fill in the entire circle darkly and completely. If you change your response, erase as completely as possible. Incomplete marks or erasures may affect your score.

1	A B C D E	26	A B C D E	51	A B C D E
2	A B C D E	27	A B C D E	52	A B C D E
3	A B C D E	28	A B C D E	53	A B C D E
4	A B C D E	29	A B C D E	54	A B C D E
5	A B C D E	30	A B C D E	55	A B C D E
6	A B C D E	31	A B C D E	56	A B C D E
7	A B C D E	32	A B C D E	57	A B C D E
8	A B C D E	33	A B C D E	58	A B C D E
9	A B C D E	34	A B C D E	59	A B C D E
10	A B C D E	35	A B C D E	60	A B C D E
11	A B C D E	36	A B C D E	61	A B C D E
12	A B C D E	37	A B C D E	62	A B C D E
13	A B C D E	38	A B C D E	63	A B C D E
14	A B C D E	39	A B C D E	64	A B C D E
15	A B C D E	40	A B C D E	65	A B C D E
16	A B C D E	41	A B C D E	66	A B C D E
17	A B C D E	42	A B C D E	67	A B C D E
18	A B C D E	43	A B C D E	68	A B C D E
19	A B C D E	44	A B C D E	69	A B C D E
20	A B C D E	45	A B C D E	70	A B C D E
21	A B C D E	46	A B C D E	71	A B C D E
22	A B C D E	47	A B C D E	72	A B C D E
23	A B C D E	48	A B C D E	73	A B C D E
24	A B C D E	49	A B C D E	74	A B C D E
25	A B C D E	50	A B C D E	75	A B C D E

ETS USE ONLY

Exam		0 1 2 3 4 5 6 7 8 9
		0 1 2 3 4 5 6 7 8 9
Exam		0 1 2 3 4 5 6 7 8 9
		0 1 2 3 4 5 6 7 8 9

SELECTED MEDIA EXAMS	R	W	O	OTHER EXAMS	R	W	O
PT02				TOTAL			
PT03				Subscore (if applicable)			
PT04				Subscore (if applicable)			

DO NOT WRITE IN THIS AREA

QUESTIONS 76–120

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

76	A B C D E	91	A B C D E	106	A B C D E
77	A B C D E	92	A B C D E	107	A B C D E
78	A B C D E	93	A B C D E	108	A B C D E
79	A B C D E	94	A B C D E	109	A B C D E
80	A B C D E	95	A B C D E	110	A B C D E
81	A B C D E	96	A B C D E	111	A B C D E
82	A B C D E	97	A B C D E	112	A B C D E
83	A B C D E	98	A B C D E	113	A B C D E
84	A B C D E	99	A B C D E	114	A B C D E
85	A B C D E	100	A B C D E	115	A B C D E
86	A B C D E	101	A B C D E	116	A B C D E
87	A B C D E	102	A B C D E	117	A B C D E
88	A B C D E	103	A B C D E	118	A B C D E
89	A B C D E	104	A B C D E	119	A B C D E
90	A B C D E	105	A B C D E	120	A B C D E

QUESTIONS 121–126

For Students Taking AP Biology

Write your answer in the boxes at the top of the griddable area and fill in the corresponding circles. Mark only one circle in any column. You will receive credit only if the circles are filled in correctly.

121 122 123 124 125 126

QUESTIONS 131–142

For Students Taking AP Computer Science Principles, AP Physics 1, or AP Physics 2

Mark two responses per question. You will receive credit only if both correct responses are selected.

131	A B C D	135	A B C D	139	A B C D
132	A B C D	136	A B C D	140	A B C D
133	A B C D	137	A B C D	141	A B C D
134	A B C D	138	A B C D	142	A B C D

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DO NOT WRITE IN THIS AREA

COMPLETE THIS AREA ONLY ONCE.

R. YOUR MAILING ADDRESS

Use the address abbreviations from your AP Student Pack. Fill in only one circle per column. Indicate a space in your address by leaving a blank box; do not grid that column.

STREET ADDRESS (include street number, street name, apartment number, etc.)

CITY

ZIP OR POSTAL CODE

COUNTRY CODE

STATE

AK	HI	MI	NY	VT
AL	IA	MN	OH	WA
AR	ID	MO	OK	WI
AZ	IL	MS	OR	WV
CA	IN	MT	PA	WY
CO	KS	NC	RI	Puerto Rico
CT	KY	ND	SC	
DC	LA	NE	SD	AA
DE	MA	NH	TN	AE
FL	MD	NJ	TX	AP
GA	ME	NM	UT	Other
		NV	VA	

V. SEX

- Female
- Male

W. WHICH LANGUAGE DO YOU KNOW BEST?

- English
- English and another language about the same
- Another language

X. RACIAL/ETHNIC GROUP

Please answer both questions about Hispanic origin and about race. For the following questions about your identity, Hispanic origins are not races.

(You may mark all that apply.)

a. Are you of Hispanic, Latino, or Spanish origin?

- No, not of Hispanic, Latino, or Spanish origin
- Yes, Cuban
- Yes, Mexican
- Yes, Puerto Rican
- Yes, another Hispanic, Latino, or Spanish origin

b. What is your race?

- American Indian or Alaska Native
- Asian (including Indian subcontinent and Philippines origin)
- Black or African American (including Africa and Afro-Caribbean origin)
- Native Hawaiian or other Pacific Islander
- White (including Middle Eastern origin)

Y. PARENTAL EDUCATION LEVEL

In the first column, indicate the highest level of education of one parent/guardian, and indicate whether this is your mother/female guardian or father/male guardian. Then, if applicable, indicate the highest level of education of your other parent/guardian in the second column, and indicate whether this is your mother/female guardian or father/male guardian.

Mother or female guardian	
Father or male guardian	
Grade school	
Some high school	
High school diploma or equivalent	
Vocational or trade school	
Some college	
Associate or two-year degree	
Bachelor's or four-year degree	
Some graduate or professional school	
Graduate or professional degree	

S. FOR STUDENTS OUTSIDE THE UNITED STATES ONLY

- If your address does not fit in the spaces provided in Item R, fill in as many circles as you can, then fill in the circle in Item S and print the remainder of your address in the spaces provided.

Address	City	State or Province	Country	ZIP or Postal Code

T. STUDENT IDENTIFIER (Student ID Number)

U. EMAIL ADDRESS

By providing your email address, you are granting the College Board permission to use your email address in accordance with the policies in the *2016-17 Bulletin for AP Students and Parents*.

Section I: Multiple-Choice Questions

This is the multiple-choice section of the 2017 AP exam.
It includes cover material and other administrative instructions
to help familiarize students with the mechanics of the exam.
(Note that future exams may differ in look from the following content.)

AP® Microeconomics Exam

SECTION I: Multiple Choice

2017

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
66.67%
Writing Instrument
Pencil required
Electronic Device
None allowed

Instructions

Section I of this exam contains 60 multiple-choice questions. Fill in only the circles 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 circle 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) 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.

Your total score on the multiple-choice section is based only on the number of questions answered correctly. Points are not deducted for incorrect answers or unanswered questions.

Form I
Form Code 4NBP4-S

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 Microeconomics 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

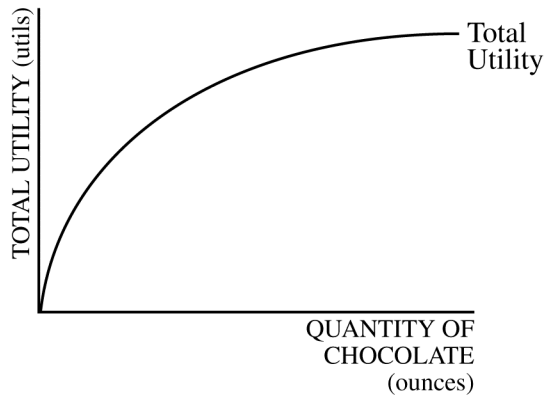
Directions: Each of the questions or incomplete statements below is followed by five suggested answers or completions. Select the one that is best in each case and then fill in the corresponding circle on the answer sheet.

1. An outward shift of a production possibilities curve can be caused by

   (A) planting a more profitable farm crop
   (B) improving technology
   (C) using idle resources
   (D) changing consumer preferences
   (E) increasing the minimum wage

2. At a price of $10, the quantity demanded of pizzas is 100 and the quantity supplied is 150. Which of the following statements must be true?

   (A) There is a shortage of pizza at a price of $10.
   (B) The equilibrium price of pizza is below $10.
   (C) The quantity of pizzas sold will be 150.
   (D) At equilibrium, fewer than 100 pizzas will be sold.
   (E) The pizza market is in equilibrium.



3. The diagram above shows Sally's utility function for chocolate. Her utility function illustrates the principle of

   (A) trade-offs when making choices
   (B) diminishing marginal utility
   (C) income and substitution effects
   (D) increasing opportunity cost
   (E) constrained utility maximization

4. At a perfectly competitive firm's current output level, average total cost is $15, average variable cost is $10, and marginal cost is $8 and increasing. If the product price is $15, what should this firm do to maximize profits?

   (A) Increase the quantity of output produced.
   (B) Increase the product price.
   (C) Decrease the product price to increase sales.
   (D) Shut down immediately.
   (E) Continue to produce at its current output level.

5. The government must provide public goods such as national defense because

   (A) the production of public goods requires economies of scale that the private sector cannot achieve
   (B) it is generally impossible to exclude individuals who value public goods but do not pay for them
   (C) public goods cannot be produced in private competitive markets, since they have highly inelastic demand
   (D) private producers charge a price that is substantially greater than marginal cost
   (E) no single individual should have to pay for public goods, since they benefit society as a whole

6. Which of the following will increase the demand for pizza, a normal good?

   (A) An increase in the cost of producing pizza
   (B) A decrease in the price of pizza
   (C) An increase in the price of a complementary product
   (D) An increase in consumers' income
   (E) An increase in the number of restaurants selling pizza

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7. Game theory is used to explain

   (A) why firms price discriminate
   (B) how monopolies evolve into oligopolies
   (C) strategic behavior of firms in oligopoly
   (D) profit maximization in monopoly
   (E) price leadership of monopolistic competition

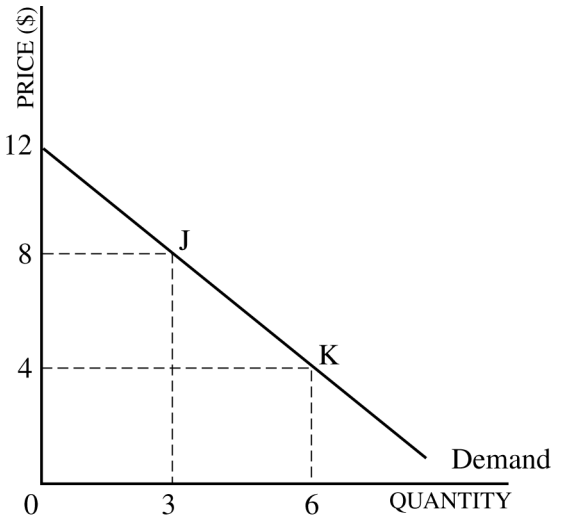
8. If a profit-maximizing firm in a perfectly competitive market chooses to produce in the short run, then marginal cost is always

   (A) greater than or equal to total cost
   (B) greater than or equal to average total cost
   (C) greater than or equal to average variable cost
   (D) greater than or equal to average fixed cost
   (E) less than average total cost

Quantity of Apples	Total Benefit ($)
1	10
2	18
3	24
4	28
5	30
6	31

9. The table above shows the total benefit Tony gets from eating different quantities of apples. If apples cost $3 each, how many should he buy to maximize his consumer surplus?

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



10. Given the demand curve above, if price decreases from $8 to $4 per unit, total consumer surplus will

    (A) increase by $4
    (B) increase by $8
    (C) increase by $12
    (D) increase by $18
    (E) remain constant at $24

11. Which of the following describes how a market will respond when the scarcity of a good increases?

    (A) Consumers will increase their demand for the good.
    (B) Consumers will decrease their demand for the good.
    (C) The price of the good will increase.
    (D) The price of the good will decrease.
    (E) Producers will increase the supply of the good.

12. Suppose that the demand for vegetables is price elastic. If the price of vegetables increases by 5 percent, the quantity of vegetables demanded would

    (A) increase by 5 percent
    (B) increase by more than 5 percent
    (C) increase by less than 5 percent
    (D) decrease by more than 5 percent
    (E) decrease by less than 5 percent

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13. The table below lists the monthly individual demand schedules for text messages for the only three buyers in the market: Allison, Bill, and Chang.

Price per Text Message	Text Messages Demanded by		
	Allison	Bill	Chang
4¢	500	400	360
8¢	350	300	280
12¢	200	200	200
16¢	50	100	120
20¢	0	0	40

Which of the following combinations of price and quantity lies on the market demand curve?

	Price	Quantity
(A)	4¢	1,000
(B)	8¢	350
(C)	12¢	200
(D)	16¢	270
(E)	20¢	0

14. Which of the following best explains why a firm's short-run marginal cost curve shifts down when it purchases new, more efficient equipment and experiences an increase in its total cost?

(A) The situation represents an exception to the law of diminishing returns.
(B) The average total cost curve shifts upward as a result of the equipment purchase, and there is a movement up along the marginal cost curve.
(C) The equipment purchase is a fixed cost, and the new equipment will cause a reduction in the cost of producing each additional unit.
(D) The average variable cost curve shifts upward as a result of the equipment purchase, and the marginal cost curve shifts downward.
(E) The marginal cost curve shifts downward because of the law of diminishing returns.

Questions 15-16 are based on the chart below for a firm that is perfectly competitive in both the labor and product markets, showing how much daily output a firm can produce using different numbers of workers.

Number of Workers	Output
1	3
2	9
3	16
4	21
5	23
6	24

15. If output sells for $20 per unit, what is the marginal revenue product of the fifth worker?

(A) $2
(B) $40
(C) $100
(D) $115
(E) $460

16. If output sells for $20 per unit and the daily wage is $100 per worker, how many workers should the firm hire to maximize profit?

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

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Units of Labor	Quantity of Output	Total Cost
0	0	$100
1	10	$120
2	25	$150

17. Given the information above, the average variable cost of 25 units of output is

(A) $2
(B) $6
(C) $25
(D) $50
(E) $75

18. A typical firm in a perfectly competitive constant-cost industry is operating with an economic loss in the short run. When the industry returns to long-run equilibrium, what will happen to the number of firms in the industry, the market price, and the typical firm's quantity?

	Number of Firms	Market Price	Firm's Quantity
(A)	Decrease	Increase	Increase
(B)	Decrease	Decrease	Increase
(C)	Decrease	Increase	Decrease
(D)	Increase	Increase	Decrease
(E)	Increase	Decrease	Decrease

Questions 19-20 refer to the table below.

The two firms in an industry are deciding whether to advertise. The profit to each firm depends on the other firm's decision. The first entries in the matrix below indicate the profit earned, in millions of dollars, by Firm A; and the second entries indicate the profits earned, in millions of dollars, by Firm B.

		Firm B: Advertise	Firm B: Do Not Advertise
Firm A	Advertise	$7, $1	$5, $4
	Do Not Advertise	$3, $2	$2, $0

19. Based on the payoff matrix, which of the following is correct?

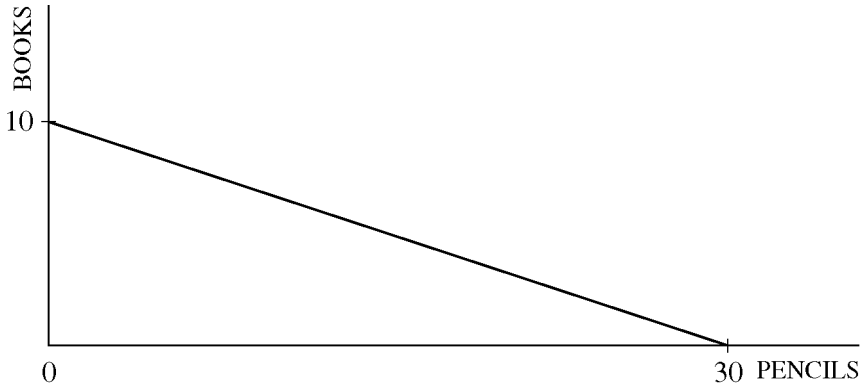
(A) Firm A always gets a smaller share of the industry profits.
(B) Firm A's dominant strategy is to advertise.
(C) Firm B's dominant strategy is not to advertise.
(D) The dominant strategy for both firms is not to advertise.
(E) Neither firm has a dominant strategy.

20. The combination where Firm A advertises and Firm B does not advertise is Nash equilibrium because

(A) it is best for each firm given what the other firm has chosen
(B) the total industry profits are maximized
(C) Firm A has an incentive to change its strategy and chooses not to advertise
(D) it is the best outcome for Firm B regardless of what firm A does
(E) advertising is always the best strategy for Firm A

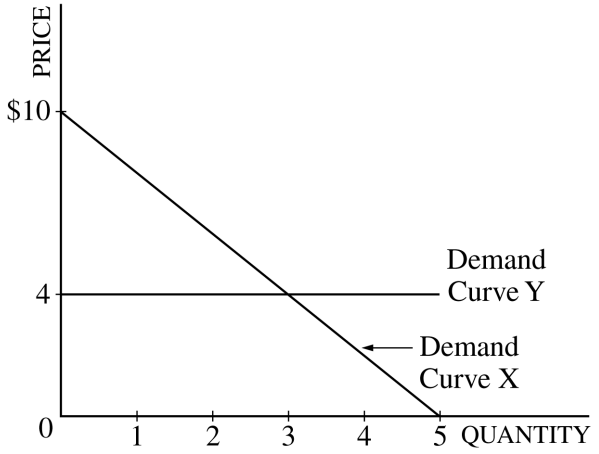
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21. Based on the production possibilities curve for books and pencils shown above, what is the opportunity cost of producing a book?

(A) 30 pencils
(B) 10 pencils
(C) 3 pencils
(D) 1/3 of a pencil
(E) 1/10 of a pencil



22. The demand curves X and Y are shown in the graph above. Which of the following offers the most accurate comparison of the price elasticities of demand curves X and Y at a price of $4?

	Demand Curve X	Demand Curve Y
(A)	Perfectly elastic	Perfectly inelastic
(B)	Perfectly inelastic	Perfectly elastic
(C)	Perfectly inelastic	Relatively elastic
(D)	Relatively inelastic	Perfectly elastic
(E)	Relatively elastic	Relatively inelastic

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23. An art student spends all of her income on pencils and drawing pads. The student currently buys 30 pencils at $1 each and 10 pads at $5 each. If the marginal utility of the 30th pencil is 100 utils and the marginal utility of the 10th pad is 400 utils, to maximize utility the student should change her purchases of pencils and pads in which of the following ways?

	Pencils	Pads
(A)	Not change	Buy more
(B)	Buy more	Buy more
(C)	Buy more	Buy less
(D)	Buy less	Buy more
(E)	Buy less	Buy less

24. Assume that the current market equilibrium price for milk is $2.80 per gallon and that 5 million gallons are sold per day. If the government sets a price ceiling of $2.00 per gallon, which of the following is true?

(A) The demand for milk will increase.
(B) The supply of milk will decrease.
(C) There will be an excess supply of milk in the market.
(D) More than 5 million gallons of milk will be sold.
(E) Less than 5 million gallons of milk will be sold.

25. Which of the following is most likely to cause the demand curve for nurses to shift to the right?

(A) An increase in the number of nurses graduating from nursing schools
(B) An increase in nursing schools' tuition
(C) An increase in the number of hospitals that employ nurses
(D) A decrease in the marginal productivity of nurses
(E) An improvement in the health of older people

26. In a given year, Jennifer earns $50,000 and spends $40,000. During the same period, Steve earns $30,000 and spends $27,000. If Jennifer and Steve both must pay a 10 percent sales tax on goods purchased, the sales tax is

(A) a higher percentage of income for Jennifer than for Steve
(B) a higher percentage of spending for Steve than for Jennifer
(C) progressive with respect to income
(D) regressive with respect to income
(E) proportional with respect to income

27. A monopolistically competitive firm is currently producing the profit-maximizing level of output. If the price of a variable input increases, which of the following will occur?

(A) The firm will increase its output to increase its revenue.
(B) The firm will increase the price of its output by the same amount.
(C) The firm's average total cost and marginal cost curves will shift upward.
(D) The firm's average fixed cost will decrease as it decreases production.
(E) The firm's fixed cost will increase, but its output level will be unaffected.

28. The table below shows the long-run total cost function of a firm.

Quantity of Output	Total Cost ($)
0	0
1	10
2	20
3	30
4	40
5	50

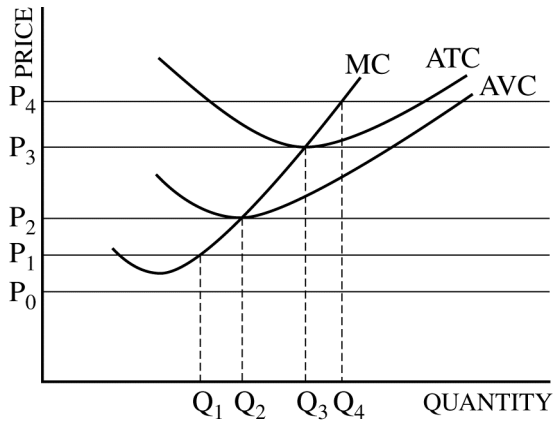
The firm's cost function exhibits

(A) diseconomies of scale
(B) constant returns to scale
(C) economies of scale
(D) decreasing marginal cost
(E) increasing marginal cost

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Questions 29-30 are based on the following graph, which shows a firm's marginal cost (MC), average total cost (ATC), and average variable cost (AVC).



29. In the short run, the firm will

(A) shut down if the price falls below P_3
(B) continue to produce as long as the price is greater than P_1
(C) continue to produce as long as the price is greater than P_2
(D) earn economic profits as long as the price is greater than P_2
(E) cover its fixed cost as long as the price is less than P_3

30. The firm's short-run supply curve is which of the following?

(A) The AVC curve above P_1
(B) The AVC curve above P_2
(C) The ATC curve above P_3
(D) The MC curve above P_2
(E) The MC curve above P_3

	Labor Hours Required to Produce	
	One Pair of Shoes	One Loaf of Bread
Mr. X	5 hours	1 hour
Ms. Y	2 hours	0.5 hour

31. According to the data above, if Mr. X and Ms. Y have the opportunity to trade, which of the following will be mutually beneficial?

(A) Ms. Y sells shoes to and buys bread from Mr. X.
(B) Ms. Y sells bread to and buys shoes from Mr. X.
(C) Ms. Y sells both bread and shoes to Mr. X.
(D) Ms. Y buys both bread and shoes from Mr. X.
(E) Ms. Y and Mr. X do not trade with each other.

32. If the government eliminates an effective minimum wage in a competitive labor market, which of the following is true?

(A) Minimum wage workers will experience no change in hourly pay.
(B) Minimum wage workers will experience a decrease in hourly pay.
(C) The number of people employed will decrease because people do not want to work for low wages.
(D) There will be an excess demand for workers.
(E) There will be an increase in the supply of workers.

33. Carmen consumes both entertainment and medical care. For Carmen, entertainment is a normal good, and the income elasticity of her demand for medical care is zero. If Carmen's income increases, which of the following will be the immediate impact on her consumption?

	Entertainment	Medical Care
(A)	Increase	Increase
(B)	Increase	No change
(C)	No change	Increase
(D)	Increase	Decrease
(E)	Decrease	Increase

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34. Assume that a perfectly competitive firm is in long-run equilibrium. If industry demand for the product increases, how will this firm's price, output, and profit change in the short run?

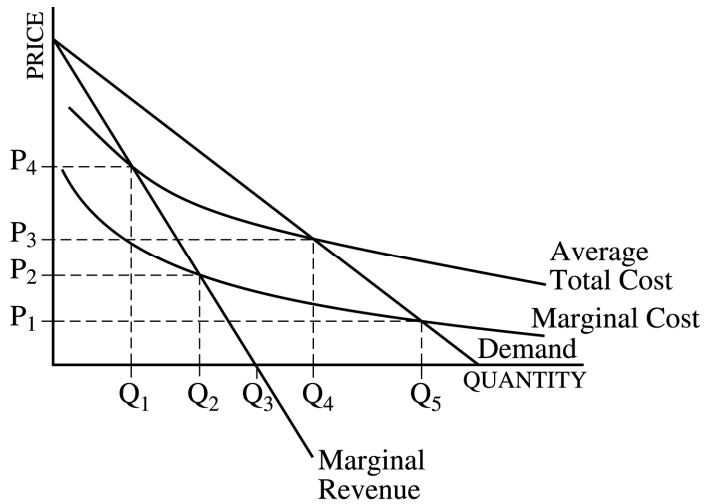
	Price	Output	Profit
(A)	Increase	Increase	Increase
(B)	Increase	Decrease	Decrease
(C)	Increase	Increase	Decrease
(D)	No change	Decrease	Decrease
(E)	Decrease	Increase	Increase

35. One difference between oligopolies and monopolistically competitive markets is that

(A) there is no deadweight loss in monopolistically competitive markets, but there is in oligopolies
(B) the products sold in monopolistically competitive markets are identical
(C) oligopolies have fewer barriers to entry
(D) firms maximize profits in monopolistically competitive markets but not in oligopolies
(E) there are fewer firms in oligopolistic markets than in monopolistically competitive ones

---

Questions 36-37 refer to the following diagram of a natural monopolist.



36. The firm shown in the diagram above qualifies as a natural monopoly because

(A) the demand curve is downward sloping
(B) the demand curve lies above the marginal revenue curve
(C) the average total cost is decreasing in the relevant range of market demand
(D) the firm can maximize profit with any output level it chooses
(E) marginal revenue is positive at the profit-maximizing output level

37. If government regulated the natural monopoly to produce the output resulting in zero economic profit, then the output would be

(A) Q_1
(B) Q_2
(C) Q_3
(D) Q_4
(E) Q_5

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38. Which of the following characteristics is prevalent in oligopolies?

(A) Allocative efficiency
(B) Low barriers of entry
(C) Consideration of rivals' reactions
(D) No deadweight loss
(E) Zero economic profit

39. A firm uses capital and labor in its production process. The marginal product for the last unit of labor is 5, the marginal product for the last unit of capital is 10, and the wage is $10. At what cost of hiring each unit of capital would the firm be minimizing the cost of the current output?

(A) $5
(B) $10
(C) $15
(D) $20
(E) $50

40. Which of the following must be true if a profit-maximizing monopolistically competitive firm continues to operate in the short run while incurring a loss?

(A) Marginal revenue equals marginal cost and price is greater than average total cost.
(B) Marginal revenue equals marginal cost and price is greater than average variable cost.
(C) Marginal revenue equals marginal cost and price is less than average variable cost.
(D) Price equals both marginal cost and marginal revenue.
(E) Price is less than marginal revenue, but greater than average variable cost.

41. Marginal analysis suggests that an individual will consume one additional unit of a good if the

(A) sunk cost can be recovered
(B) total benefit is less than the total cost
(C) total benefit is greater than the total cost
(D) additional benefit is less than the additional cost
(E) additional benefit is greater than the additional cost

42. If a perfectly competitive market with no government intervention is allocatively efficient, which of the following must be true?

(A) Consumer surplus plus producer surplus is at its maximum.
(B) Consumer surplus is larger than producer surplus.
(C) Producer surplus is larger than consumer surplus.
(D) All surplus is producer surplus.
(E) All surplus is consumer surplus.

Questions 43-44 are based on the output and cost data in the table below.

Quantity of Output Produced (units)	Total Variable Cost ($)	Total Cost ($)
1	100	200
2	190	290
3	270	370
4	340	440
5	420	520
6	510	610
7	610	710

43. According to the cost schedule in the table above, the firm's total fixed cost is

(A) increasing
(B) decreasing
(C) $90
(D) $100
(E) impossible to determine

44. If there is only one variable input, diminishing marginal returns first occur with the production of which unit of output?

(A) 7th
(B) 6th
(C) 5th
(D) 4th
(E) 3rd

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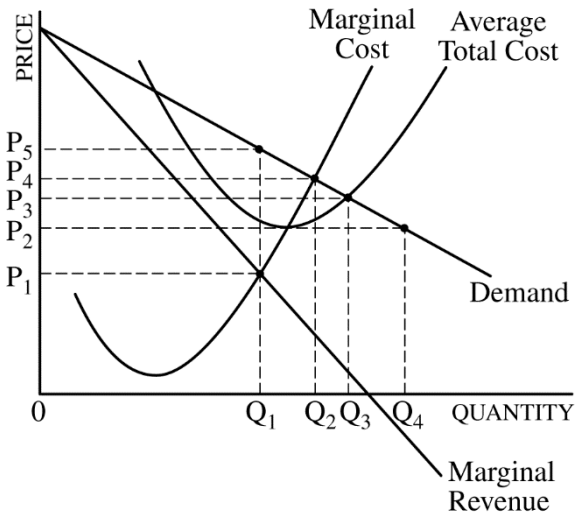
45. Max employs both labor and capital to produce toy trains. Currently the last unit of labor employed has a marginal product of 15 units. The last unit of capital employed has a marginal product of 40 units. The price of labor is $3 per unit, and the price of capital is $10 per unit. Which of the following employment decisions should Max follow to use the least-cost combination of labor and capital to produce the current quantity of toy trains?

	Employment of Labor	Employment of Capital
(A)	Increase	No change
(B)	Decrease	Increase
(C)	Decrease	Decrease
(D)	Increase	Increase
(E)	Increase	Decrease

46. Good X is produced in a perfectly competitive industry in long-run equilibrium. If the consumption of good X generates positive externalities, the private market will produce

(A) less than the socially optimum amount of good X
(B) more than the socially optimum amount of good X
(C) the socially optimum amount of good X
(D) good X only if the government grants a subsidy for the production of good X
(E) good X only if the government levies a corrective tax on the production of good X

Questions 47-48 refer to the following graph, which shows the cost and revenue curves for a profit-maximizing monopolistically competitive firm.



47. What is the profit-maximizing price and quantity?

	Price	Quantity
(A)	P_1	Q_1
(B)	P_2	Q_4
(C)	P_3	Q_3
(D)	P_4	Q_2
(E)	P_5	Q_1

48. Is the firm in short-run or long-run equilibrium?

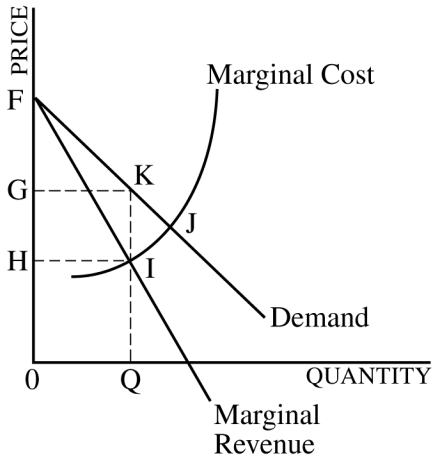
(A) Short run, because price is greater than marginal cost
(B) Short run, because the firm is earning a positive economic profit
(C) Long run, because price is greater than average total cost
(D) Long run, because marginal revenue is not equal to zero
(E) Either short run or long run, because the firm is producing where marginal revenue equals marginal cost

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49. Which of the following is true of a firm in a perfectly competitive industry?

(A) It faces a perfectly elastic demand curve.
(B) It faces a downward-sloping demand curve.
(C) It will increase its total revenue if it increases the selling price of its product.
(D) Its cost could be greatly reduced if it did not have to advertise its product.
(E) It sets the price of its product at the level at which profits are maximized or losses are minimized.



50. In the diagram above, the deadweight loss from a profit-maximizing monopolist is represented by area

(A) FGK
(B) FHI
(C) IJK
(D) GHIK
(E) 0HIQ

51. As the population of a country ages, the demand for health care is projected to increase. As a result, the health care industry is likely to experience all of the following EXCEPT

(A) an increase in demand for health care workers
(B) an increase in demand for medicine
(C) an increase in the quantity of health care workers supplied
(D) an increase in the wages of health care workers
(E) a decrease in the prices of medicine

52. Suppose that the government imposes a per-unit tax on the producers of a good that has a perfectly inelastic demand. After the tax, the price and quantity of the good sold would change in which of the following ways?

	Price	Quantity
(A)	Increase	Increase
(B)	Increase	Decrease
(C)	Increase	Not change
(D)	Not change	Increase
(E)	Decrease	Not change

53. When the marginal cost curve lies below the average total cost curve, it is true that as output increases

(A) marginal cost is decreasing
(B) marginal cost is increasing
(C) average total cost is decreasing
(D) average total cost is increasing
(E) average variable cost is decreasing

54. Assume that the government imposes an excise tax on the consumption of a good. The tax will have the least impact on the market equilibrium quantity for which of the following combinations of the price elasticities of demand and supply?

	Absolute Value of Elasticity of Demand	Elasticity of Supply
(A)	4	4
(B)	4	0.50
(C)	1	1
(D)	0.50	4
(E)	0.50	0.50

---

55. The monopsonist's marginal factor (resource) cost curve for labor is

(A) above the labor supply curve because the product price is found on the demand curve above where marginal cost equals marginal revenue
(B) above the labor supply curve because to hire more workers the firm must raise the wage for all workers
(C) below the labor supply curve because the firm is a wage taker
(D) below the labor supply curve because of diminishing marginal returns to labor
(E) below the labor supply curve because to sell additional units of output the firm must lower its product price

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56. Which of the following best demonstrates nonrivalry in consumption?

(A) Occupying a seat in a sold-out movie theatre
(B) Sharing rent equally among roommates
(C) Catching fish in a local pond
(D) Playing golf on a crowded public golf course
(E) Listening to a radio program

Item 57 was not scored.

58. The Lorenz curve is used to study the

(A) relationship between output and unemployment
(B) relationship between income and consumption
(C) extent of income inequality within a society
(D) incidence of an excise tax on buyers and sellers in a market
(E) impact of foreign trade on domestic production of goods

59. An effective minimum wage policy in a competitive market will increase unemployment and increase the total earnings of labor only if the demand for labor is

(A) relatively inelastic
(B) relatively elastic
(C) unit elastic
(D) greater than the supply
(E) positively related to the wage rate

60. Compared with a perfectly competitive market, a single-price monopoly with the same market demand and cost curves will

(A) increase output and price
(B) increase output and decrease price
(C) decrease output and price
(D) decrease output and increase price
(E) produce the same level of output and increase price

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.

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Section II: Free-Response Questions

This is the free-response section of the 2017 AP exam.
It includes cover material and other administrative instructions
to help familiarize students with the mechanics of the exam.
(Note that future exams may differ in look from the following content.)

AP® Microeconomics Exam

SECTION II: Free Response

2017

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At a Glance

Total Time
1 hour
Number of Questions
3
Percent of Total Score
33.33%
Writing Instrument
Pen with black or dark blue ink
Electronic Device
None allowed

Reading Period

Time
10 minutes. Use this time to read the questions and plan your answers. You may begin writing your responses before the reading period is over.

Writing Period

Time
50 minutes

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%

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   ☐☐ Month ☐☐ Day ☐☐☐☐ Year
3. Six-digit school code
   ☐☐☐☐☐☐
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 this booklet. You may use page 3 and the pages the questions are printed on to organize your answers and for scratch work, but you must write your answers on the lined pages provided for each question.

The proctor will announce the beginning and end of the reading period. You are advised to spend the 10-minute period reading all the questions and planning your answers. You may begin writing your responses before the reading period is over.

Write clearly and legibly. 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.

Form I
Form Code 4NBP4-S

MICROECONOMICS

Section II

Total Time—60 minutes

Reading Period—10 minutes

Writing Period—50 minutes

Directions: You are advised to spend the first 10 minutes reading all of the questions and planning your answers. You will then have 50 minutes to answer all three of the following questions. You may begin writing your responses before the reading period is over. 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. 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.

Question 1 begins on page 4.

Question 2 begins on page 10.

Question 3 begins on page 14.

THIS PAGE MAY BE USED FOR TAKING NOTES AND PLANNING YOUR ANSWERS.

NOTES WRITTEN ON THIS PAGE WILL NOT BE SCORED.

WRITE ALL YOUR RESPONSES ON THE LINED PAGES.

1. Joyce owns a gas station and monopolizes gas sales along a remote stretch of road. In February, Joyce stayed open even though she earned negative economic profits.

   (a) Draw a correctly labeled graph for Joyce's gas station during February and show each of the following.

      (i) The profit-maximizing output and price, labeled Q_J and P_J

      (ii) The average total cost curve, labeled ATC

      (iii) Deadweight loss, completely shaded

   (b) What must have been true for Joyce to continue operating during the month of February even though she earned negative economic profit?

   (c) Assume that fixed costs for Joyce's gas station decrease. Would Joyce's profit-maximizing quantity increase, decrease, or stay the same in February? Explain.

   (d) During the month of July, demand increases so that Joyce now earns a positive economic profit. However, she realizes her profits would have been higher if she had reduced the price of gasoline.

      (i) At the quantity sold in July, was marginal revenue greater than, equal to, or less than marginal cost?

      (ii) Would the price decrease cause quantity demanded to increase, decrease, or stay the same?

      (iii) Would the price decrease cause the total revenue to increase, decrease, or stay the same? Explain.

THIS PAGE MAY BE USED FOR TAKING NOTES AND PLANNING YOUR ANSWERS.

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GO ON TO THE NEXT PAGE.

ANSWER PAGE FOR QUESTION 1

GO ON TO THE NEXT PAGE.

Question 1 is reprinted for your convenience.

1. Joyce owns a gas station and monopolizes gas sales along a remote stretch of road. In February, Joyce stayed open even though she earned negative economic profits.

   (a) Draw a correctly labeled graph for Joyce's gas station during February and show each of the following.

   (i) The profit-maximizing output and price, labeled Q_J and P_J

   (ii) The average total cost curve, labeled ATC

   (iii) Deadweight loss, completely shaded

   (b) What must have been true for Joyce to continue operating during the month of February even though she earned negative economic profit?

   (c) Assume that fixed costs for Joyce's gas station decrease. Would Joyce's profit-maximizing quantity increase, decrease, or stay the same in February? Explain.

   (d) During the month of July, demand increases so that Joyce now earns a positive economic profit. However, she realizes her profits would have been higher if she had reduced the price of gasoline.

   (i) At the quantity sold in July, was marginal revenue greater than, equal to, or less than marginal cost?

   (ii) Would the price decrease cause quantity demanded to increase, decrease, or stay the same?

   (iii) Would the price decrease cause the total revenue to increase, decrease, or stay the same? Explain.

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ADDITIONAL PAGE FOR ANSWERING QUESTION 1

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ADDITIONAL PAGE FOR ANSWERING QUESTION 1

GO ON TO THE NEXT PAGE.

ADDITIONAL PAGE FOR ANSWERING QUESTION 1

GO ON TO THE NEXT PAGE.

2. Brody's firm produces trumpets in a perfectly competitive market. The table below shows Brody's total variable cost. He has a fixed cost of $240, and the price per trumpet is $60.

Quantity	Total Variable Cost
6	$120
7	$145
8	$165
9	$220
10	$290
11	$390

(a) Calculate the average total cost of producing 6 trumpets. Show your work.

(b) Calculate the marginal cost of producing the 11th trumpet.

(c) What is Brody's profit-maximizing quantity? Use marginal analysis to explain your answer.

(d) At the profit-maximizing quantity you determined in part (c), calculate Brody's profit or loss. Show your work.

(e) Brody also produces saxophones at a loss in a perfectly competitive market. Draw a correctly labeled graph for Brody's firm showing the following at a market price of $200.

(i) Brody's profit-maximizing quantity of saxophones

(ii) Brody's loss, completely shaded

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ANSWER PAGE FOR QUESTION 2

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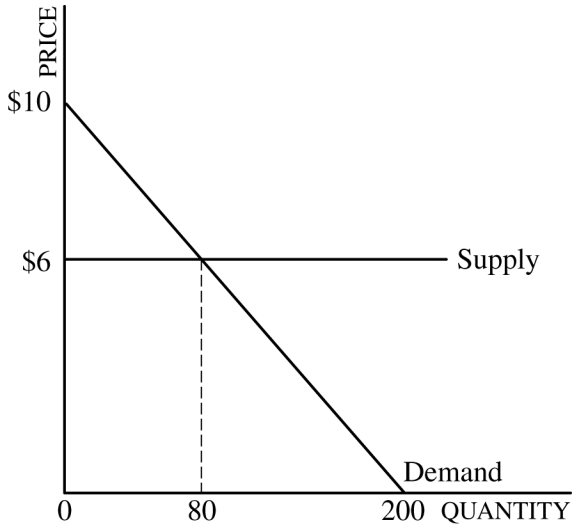
ADDITIONAL PAGE FOR ANSWERING QUESTION 2

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ADDITIONAL PAGE FOR ANSWERING QUESTION 2

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3. The market supply and demand for a product are shown in the diagram below.



(a) Is the price elasticity of supply less than one, equal to one, or greater than one? Explain.

(b) Calculate consumer surplus at the equilibrium price. Show your work.

(c) Now suppose the government imposes a per-unit tax of $1 on producers.

(i) What happens to total revenue received by producers after they pay the tax to the government? Explain.

(ii) Will producer surplus increase, decrease, or stay the same?

(iii) Will total surplus increase, decrease, or stay the same? Explain.

THIS PAGE MAY BE USED FOR TAKING NOTES AND PLANNING YOUR ANSWERS.

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GO ON TO THE NEXT PAGE.

ANSWER PAGE FOR QUESTION 3

GO ON TO THE NEXT PAGE.

ADDITIONAL PAGE FOR ANSWERING QUESTION 3

GO ON TO THE NEXT PAGE.

ADDITIONAL PAGE FOR ANSWERING QUESTION 3

GO ON TO THE NEXT PAGE.

STOP

END OF EXAM

THE FOLLOWING INSTRUCTIONS APPLY TO THE COVERS OF THE SECTION II BOOKLET.

- **MAKE SURE YOU HAVE COMPLETED THE IDENTIFICATION INFORMATION AS REQUESTED ON THE FRONT AND BACK COVERS OF THE SECTION II BOOKLET.**
- **CHECK TO SEE THAT YOUR AP NUMBER LABEL APPEARS IN THE BOX ON THE COVER.**
- **MAKE SURE YOU HAVE USED THE SAME SET OF AP NUMBER LABELS ON ALL AP EXAMS YOU HAVE TAKEN THIS YEAR.**

Multiple-Choice Answer Key

The following contains the answers to
the multiple-choice questions in this exam.

Answer Key for AP Microeconomics Practice Exam, Section I

Question 1: B
Question 2: B
Question 3: B
Question 4: A
Question 5: B
Question 6: D
Question 7: C
Question 8: C
Question 9: D
Question 10: D
Question 11: C
Question 12: D
Question 13: D
Question 14: C
Question 15: B
Question 16: C
Question 17: A
Question 18: A
Question 19: B
Question 20: A
Question 21: C
Question 22: D
Question 23: C
Question 24: E
Question 25: C
Question 26: D
Question 27: C
Question 28: B
Question 29: C
Question 30: D
Question 31: A
Question 32: B
Question 33: B
Question 34: A
Question 35: E
Question 36: C
Question 37: D
Question 38: C
Question 39: D
Question 40: B
Question 41: E
Question 42: A
Question 43: D
Question 44: C
Question 45: E
Question 46: A
Question 47: E
Question 48: B
Question 49: A
Question 50: C
Question 51: E
Question 52: C
Question 53: C
Question 54: E
Question 55: B
Question 56: E
Question 57: *
Question 58: C
Question 59: A
Question 60: D

*Not used in scoring.

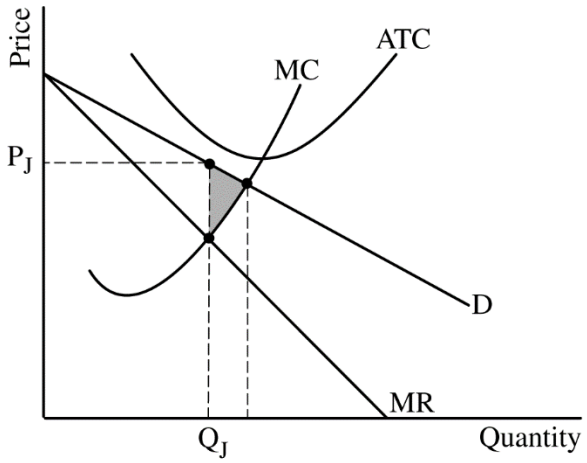
Free-Response Scoring Guidelines

The following contains the scoring guidelines
for the free-response questions in this exam.

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2017 SCORING GUIDELINES

Question 1

10 points: 5+1+1+3



(a) 5 points:

- One point is earned for drawing a correctly labeled monopoly graph with a downward-sloping demand (D) curve and a marginal revenue (MR) curve below the demand curve.
- One point is earned for showing the firm's average total cost (ATC) curve above the demand curve at Q_J with the MC curve rising and passing through the minimum of the ATC curve.
- One point is earned for identifying the firm's profit-maximizing quantity, Q_J, at MC = MR.
- One point is earned for identifying the firm's profit-maximizing price, P_J, on the demand curve, above Q_J.
- One point is earned for showing the area representing the deadweight loss shaded completely.

Note: All quantities and prices should be labeled on the axes and connected to the intersection points by dashed lines.

(b) 1 point:

- One point is earned for stating that total revenue is greater than total variable cost or that AVC < P_J.

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2017 SCORING GUIDELINES

Question 1 (continued)

(c) 1 point:

- One point is earned for stating that the profit-maximizing quantity will stay the same because a change in fixed costs does not affect marginal cost.

(d) 3 points:

- One point is earned for stating that MR is greater than MC.
- One point is earned for stating that the lower price would cause quantity demanded to increase.
- One point is earned for stating that the lower price would cause total revenue to increase, and for explaining that the decrease in price occurs in the elastic region of the demand curve.

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Question 2

7 points: 1+1+1+1+3

(a) 1 point:

- One point is earned for correctly calculating the ATC of producing 6 trumpets as $60 and for showing the work.
  ATC = TC / Q = (FC + VC) / Q = ($240 + $120) / 6 = $360 / 6 = $60
  OR ATC = AFC + AVC = ($240 / 6) + ($120 / 6) = $40 + $20 = $60

(b) 1 point:

- One point is earned for correctly calculating the marginal cost of the 11th trumpet as $100.

(c) 1 point:

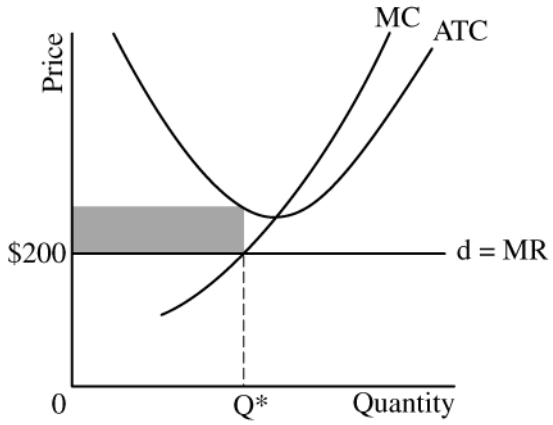
- One point is earned for correctly stating that Brody's profit-maximizing quantity is 9 trumpets, and for explaining how Brody uses marginal analysis. Brody determines quantity by equating MR to MC **OR** by choosing the greatest quantity with MR > MC:
  At the 9th trumpet: MR > MC ($60 > $55) and at the 10th trumpet: MR < MC ($60 < $70)
  OR At the 9th trumpet: MR > MC ($60 > $55) and this is the last trumpet with MR > MC
  Note: Using P instead of MR is also acceptable because P = MR for perfectly competitive firms.

(d) 1 point:

- One point is earned for correctly calculating Brody's profit as $80 and for showing the work.
  Profit = Total Revenue – Total Cost = ($60 × 9) – ($220 + $240) = $540 – $460 = $80
  OR Profit = (P – ATC) × Q = ($60 – $51.11) × 9 = $80

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Question 2 (continued)



(e) 3 points:

- One point is earned for drawing a correctly labeled graph for a perfectly competitive firm with a horizontal demand curve at P = $200.
- One point is earned for showing the profit-maximizing quantity, Q*, on the horizontal axis at MR = MC, connected with a dashed line.
- One point is earned for showing the ATC curve above the demand (d) curve at Q* and with the MC curve cutting the ATC curve at its minimum and for completely shading the area representing the loss.

Note: All quantities and prices should be labeled on the axes and connected to the intersection points by dashed lines.

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Question 3

5 points: 1+1+3

(a) 1 point:

- One point is earned for stating that the price elasticity of supply is greater than one and for explaining that the supply curve is horizontal **OR** the price elasticity of supply is infinite **OR** the supply is perfectly elastic.

(b) 1 point:

- One point is earned for correctly calculating the consumer surplus and showing the work as $1/2 \times 80 \times \$4 = \$160$.

(c) 3 points:

- One point is earned for stating that the total revenue will decrease and explaining that the quantity will decrease **OR** the percentage change of quantity demanded is greater than the percentage change in price **OR** demand is elastic in this price range.

- One point is earned for stating that producer surplus will stay the same **OR** remain zero.

- One point is earned for stating that total surplus will decrease and for explaining that the quantity decreases **OR** there is now deadweight loss after the tax is imposed **OR** the consumer surplus decreases by more than what is transferred to the government and producer surplus stays the same.

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Scoring Worksheet

The following provides a scoring worksheet and conversion table used for calculating a composite score of the exam.

2017 AP Microeconomics Scoring Worksheet

Section I: Multiple Choice

_____	× 1.0169 =	_____
Number Correct (out of 59*)		Weighted Section I Score (Do not round)

Section II: Free Response

Question 1	_____ (out of 10)	× 1.5000 =	_____ (Do not round)
Question 2	_____ (out of 7)	× 1.0714 =	_____ (Do not round)
Question 3	_____ (out of 5)	× 1.5000 =	_____ (Do not round)

Sum = _____
Weighted Section II Score (Do not round)

Composite Score

_____	+ _____	= _____
Weighted Section I Score	Weighted Section II Score	Composite Score (Round to nearest whole number)

AP Score Conversion Chart
Microeconomics

Composite Score Range	AP Score
70-90	5
55-69	4
44-54	3
36-43	2
0-35	1

*Although 60 multiple-choice items were administered in Section I, item 57 was not used in scoring.

Question Descriptors and Performance Data

The following contains tables showing the content assessed,
the correct answer, and how AP students performed on each question.

2017 AP Microeconomics

Question Descriptors and Performance Data

Multiple-Choice Questions

Question	Topic	Key	% Correct
1	Basic economic concepts	B	92
2	The nature and functions of product markets	B	82
3	The nature and functions of product markets	B	81
4	The nature and functions of product markets	A	32
5	Market Failure and the Role of government	B	36
6	The nature and functions of product markets	D	72
7	The nature and functions of product markets	C	90
8	The nature and functions of product markets	C	38
9	The nature and functions of product markets	D	61
10	The nature and functions of product markets	D	54
11	Basic economic concepts	C	86
12	The nature and functions of product markets	D	62
13	The nature and functions of product markets	D	45
14	The nature and functions of product markets	C	71
15	Factor markets	B	81
16	Factor markets	C	79
17	The nature and functions of product markets	A	31
18	The nature and functions of product markets	A	49
19	The nature and functions of product markets	B	87
20	The nature and functions of product markets	A	58
21	Basic economic concepts	C	88
22	The nature and functions of product markets	D	81
23	The nature and functions of product markets	C	43
24	The nature and functions of product markets	E	48
25	Factor markets	C	89
26	Market Failure and the Role of government	D	32
27	The nature and functions of product markets	C	67
28	The nature and functions of product markets	B	72
29	The nature and functions of product markets	C	74
30	The nature and functions of product markets	D	61
31	Basic economic concepts	A	57
32	The nature and functions of product markets	B	63
33	The nature and functions of product markets	B	83
34	The nature and functions of product markets	A	79
35	The nature and functions of product markets	E	65
36	Market Failure and the Role of government	C	45
37	Market Failure and the Role of government	D	58
38	The nature and functions of product markets	C	79

2017 AP Microeconomics

Question Descriptors and Performance Data

Question	Topic	Key	% Correct
39	The nature and functions of product markets	D	34
40	The nature and functions of product markets	B	53
41	Basic economic concepts	E	78
42	The nature and functions of product markets	A	60
43	The nature and functions of product markets	D	86
44	The nature and functions of product markets	C	41
45	Factor markets	E	53
46	Market Failure and the Role of government	A	43
47	The nature and functions of product markets	E	73
48	The nature and functions of product markets	B	60
49	The nature and functions of product markets	A	59
50	The nature and functions of product markets	C	91
51	Factor markets	E	72
52	The nature and functions of product markets	C	72
53	The nature and functions of product markets	C	45
54	The nature and functions of product markets	E	37
55	Factor markets	B	37
56	Market Failure and the Role of government	E	68
57	*	*	*
58	Market Failure and the Role of government	C	63
59	Factor markets	A	33
60	The nature and functions of product markets	D	59

* Item not included in scoring

AP Microeconomics

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