



AP[®] Microeconomics 2005 Sample Student Responses Form B

The College Board: Connecting Students to College Success

The College Board is a not-for-profit membership association whose mission is to connect students to college success and opportunity. Founded in 1900, the association is composed of more than 4,700 schools, colleges, universities, and other educational organizations. Each year, the College Board serves over three and a half million students and their parents, 23,000 high schools, and 3,500 colleges through major programs and services in college admissions, guidance, assessment, financial aid, enrollment, and teaching and learning. Among its best-known programs are the SAT[®], the PSAT/NMSQT[®], and the Advanced Placement Program[®] (AP[®]). The College Board is committed to the principles of excellence and equity, and that commitment is embodied in all of its programs, services, activities, and concerns.

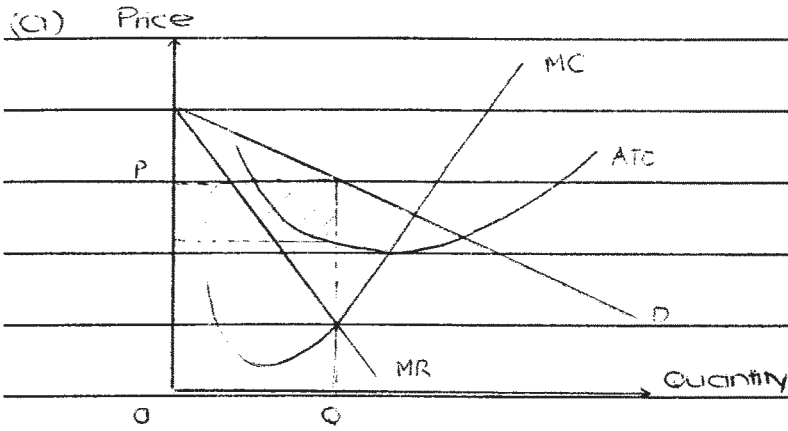
Copyright © 2005 by College Board. All rights reserved. College Board, AP Central, APCD, Advanced Placement Program, AP, AP Vertical Teams, Pre-AP, SAT, and the acorn logo are registered trademarks of the College Entrance Examination Board. Admitted Class Evaluation Service, CollegeEd, Connect to college success, MyRoad, SAT Professional Development, SAT Readiness Program, and Setting the Cornerstones are trademarks owned by the College Entrance Examination Board. PSAT/NMSQT is a registered trademark of the College Entrance Examination Board and National Merit Scholarship Corporation. Other products and services may be trademarks of their respective owners. Permission to use copyrighted College Board materials may be requested online at: <http://www.collegeboard.com/inquiry/cbpermit.html>.

Visit the College Board on the Web: www.collegeboard.com.

AP Central is the official online home for the AP Program and Pre-AP: apcentral.collegeboard.com.

Write in the box the number of the question you are answering on this page as it is designated in the examination.

1



(i) produces Q_Q

price is P

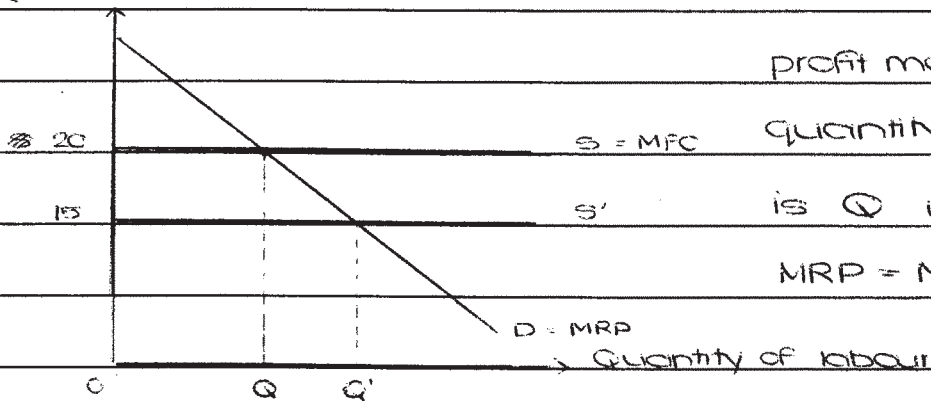
(ii) represents

Area of economic

profits

(b) (i) A firm hires up to the point where marginal factor cost (MFC) = Marginal revenue product (MRP) for profit-maximizing amount of labor.

(ii) wage rate (\$/hr)



profit maximizing

quantity of labour

is Q where

$MRP = MFC$

(c) (i) supply curve shifts from S to S'

(ii) Petscall would hire Q_Q'

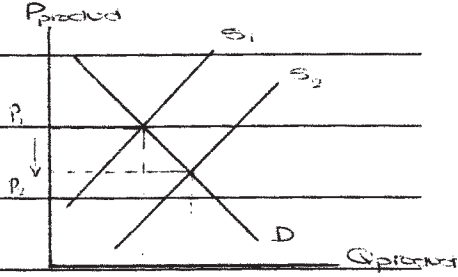
1

Write in the box the number of the question you are answering on this page as it is designated in the examination.

(d) (i) Total fixed costs remain unchanged since wages are variable costs.

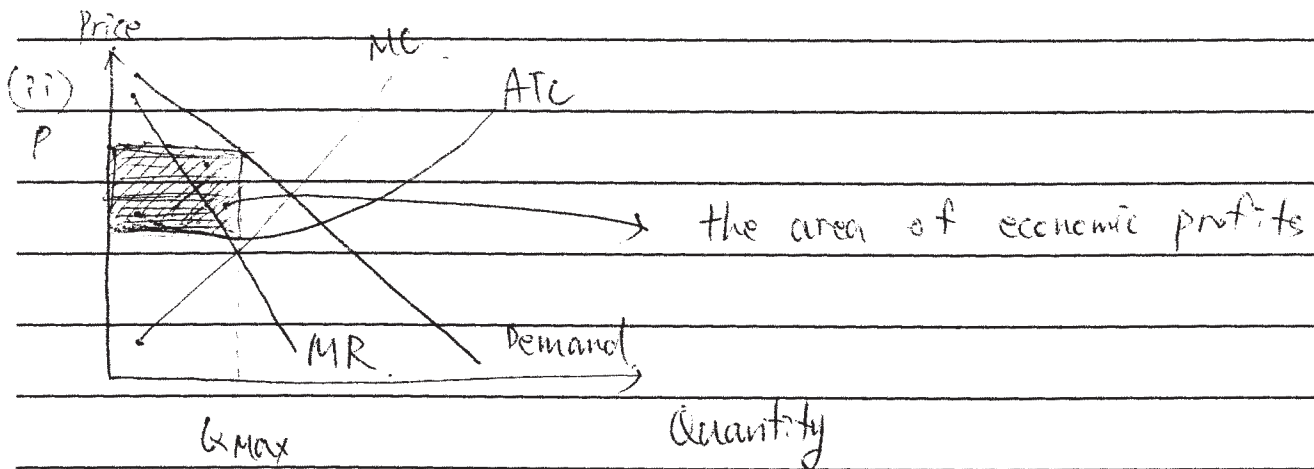
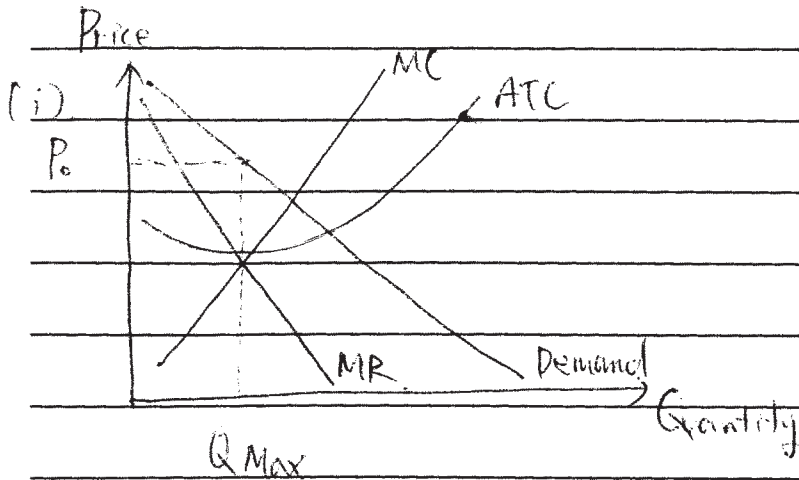
(ii) Marginal cost falls since Petsall is paying less (\$15/hr) for each additional worker.

(iii) At lower input costs, Petsall will supply more, shifting the supply curve of the product to the right and therefore the price of the product falls



Write in the box the number of the question you are answering on this page as it is designated in the examination.

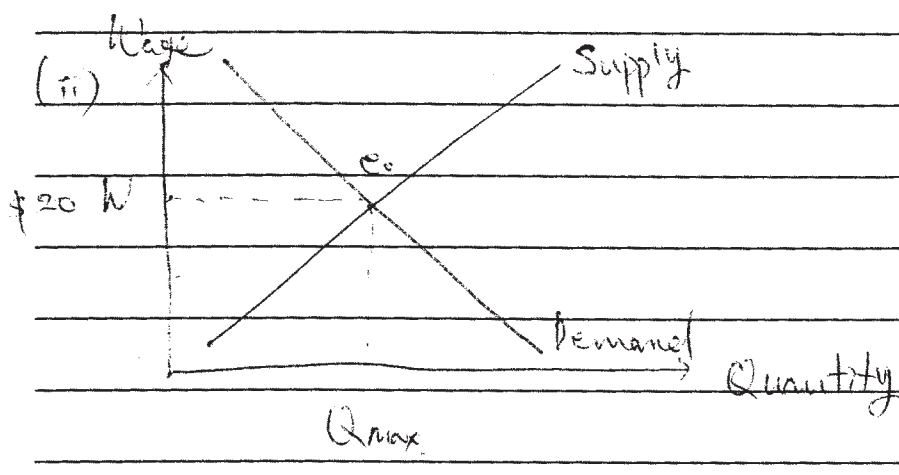
1-(a)



1-(b)

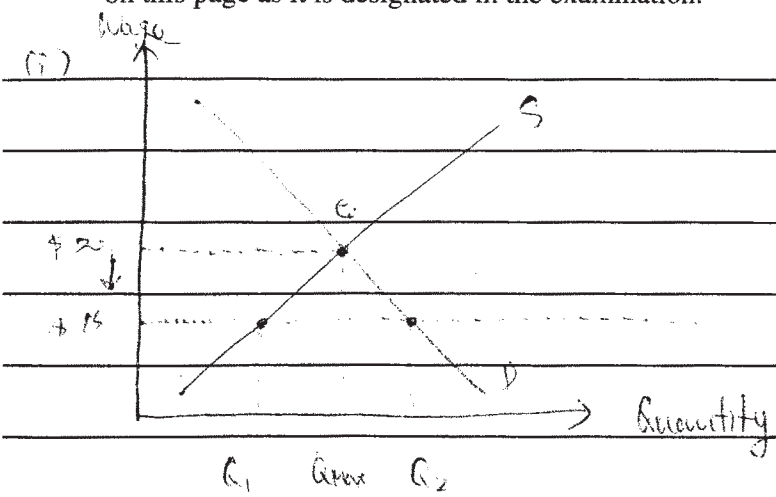
Write in the box the number of the question you are answering on this page as it is designated in the examination.

(i) $MRP = MFC$.



Write in the box the number of the question you are answering on this page as it is designated in the examination.

1-(c)

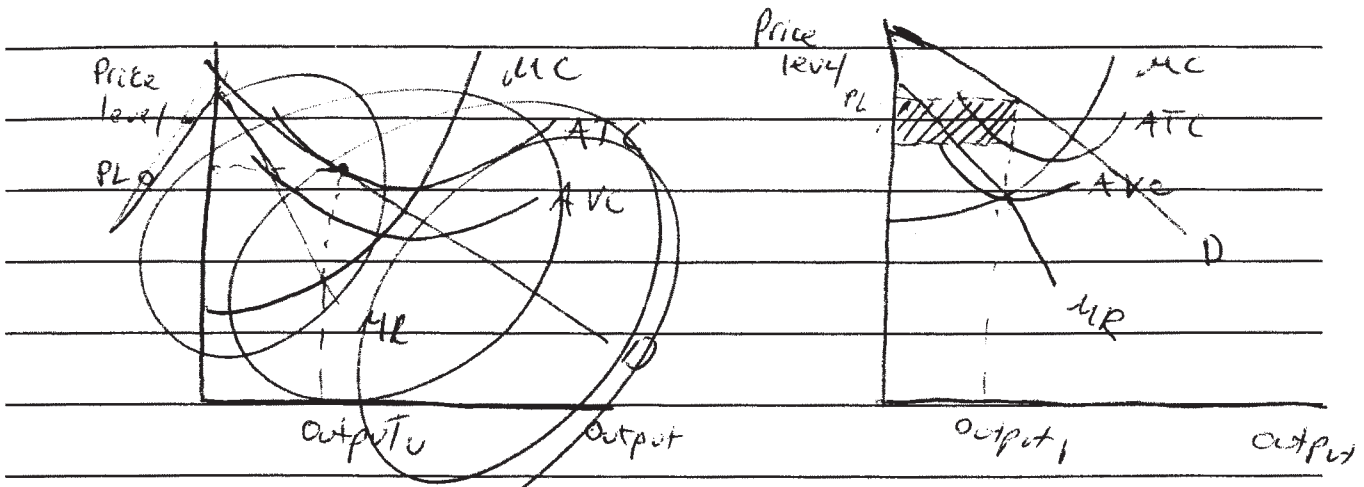


As illustrated on the graph, the supply of labor to Petsall will decrease from Q_{max} to Q_1 .

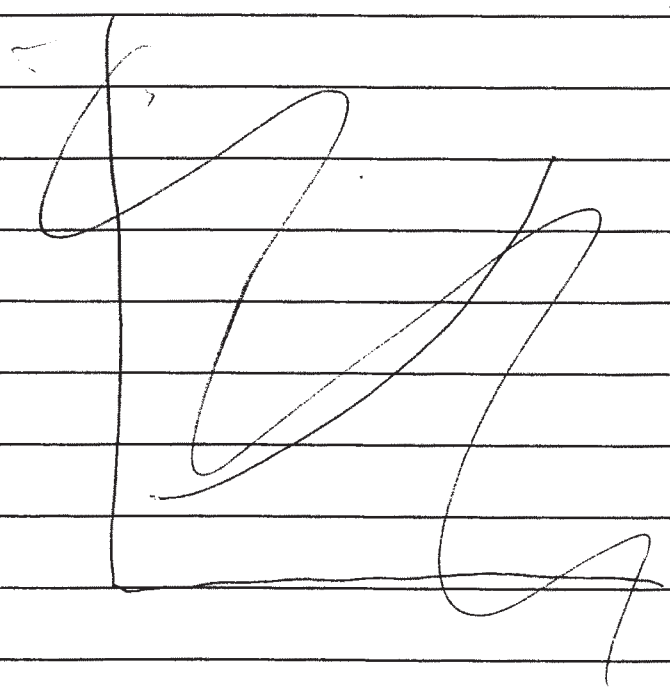
(ii) As illustrated on the graph, the amount of labor Petsall would hire will increase from Q_{max} to Q_2 .

Write in the box the number of the question you are answering on this page as it is designated in the examination.

1 (a)



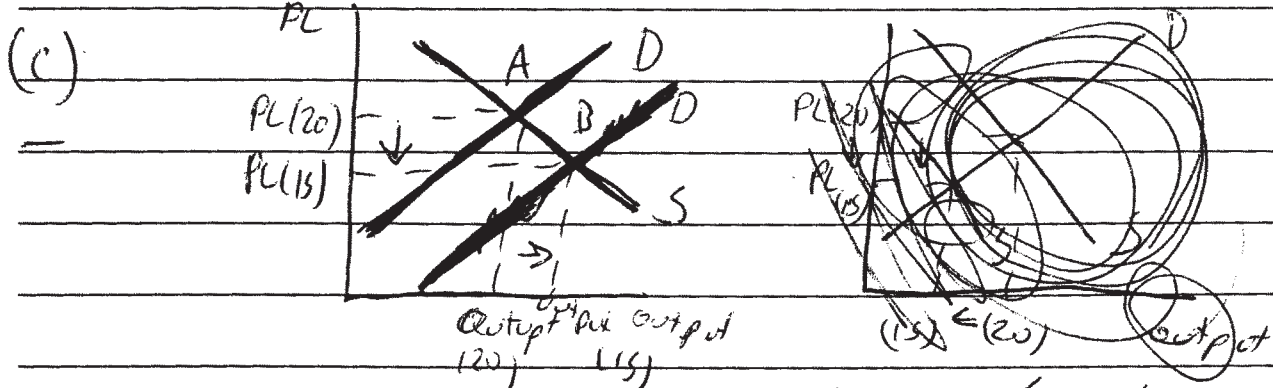
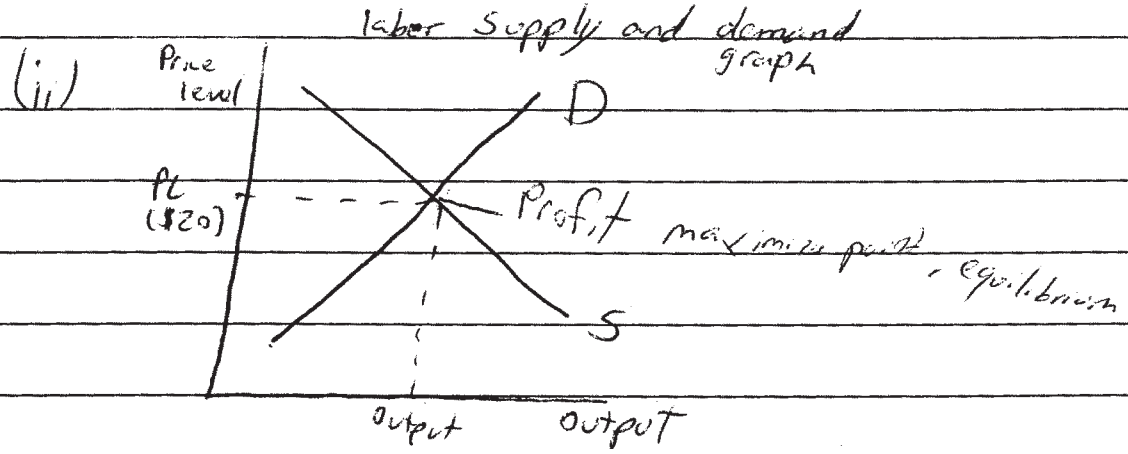
(i) marked on graph
(ii) shaded in graph
~~the line from the vertical~~
~~line~~ line created from
the intersection of MR and
MC. This line hits ATC
than D showing economic
Profit.



10

Write in the box the number of the question you are answering on this page as it is designated in the examination.

(b) (i) since profit maximization occurs where $MR = MC$. Since MR is 20 per worker / per hour, ~~the~~ ~~MC~~ MC needs to be 20 as well.



(i) since the price level has decreased there will be an ~~↑~~ [↓] for labor at the lower PL. Lower incomes decrease demand and also purchasing power.

(ii) the amount of labor hired would increase at lower wage rate.

Write in the box the number of the question you are answering on this page as it is designated in the examination.

1

10

(d) lower wage rates

↓ Wage rates - does not affect total fixed cost.

(ii) Marginal cost decreases as the ~~firm~~ corporation will not pay employees less.

(iii) The price of product will decrease because the ^{price of} inputs need to create the item have decreased.

2

Write in the box the number of the question you are answering on this page as it is designated in the examination.

2.

(a) Curve 1 : Marginal Cost Curve (MC)

Curve 2 : Average total cost curve (ATC)

Curve 3 : Average ~~total~~ variable cost curve (AVC)

(b) Curve 1, which is marginal cost curve, reflects marginal product as quantity increases. Initially, marginal product increases due to the specialization effect. Thus, marginal cost decreases ~~to~~ ~~and~~ cut first. However, as the quantity increases marginal cost increases due to the ~~and~~ diminishing marginal product law.

(c) Curve 2 - Curve 3

$$= ATC - AVC = AFC$$

∴ Average Fixed Cost (AFC).

(d) Fixed cost is constant throughout the production process. Therefore, as the quantity of output increases, the average fixed cost ~~decreases~~ is spread over and decreases. Thus, the gap between curve 2 and curve 3 decreases as ~~the~~ output increases.

(e) Short run supply curve is MC above AVC.

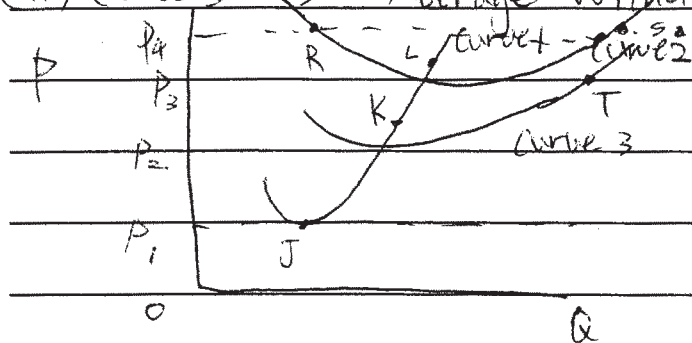
∴ L, K.

Write in the box the number of the question you are answering on this page as it is designated in the examination.

2

(a)

- (i) Curve 1 is Marginal Cost (MC)
 (ii) Curve 2 is Average Total Cost (ATC)
 (iii) Curve 3 is Average Variable Cost (AVC).



(b)

(i) Initially decreases.

→ Curve 1 is the marginal cost curve. It initially decreases before the point J because when the ~~product~~ firm hires some workers, at first, they can specialize the work and produce more.

(ii) Finally increases

→ However, in the short run, the firm cannot make the factory bigger in a night. ~~The~~ ~~more~~ The more workers are hired, the less they contribute to the work. Therefore, because they should share the equipments and the factory is crowded, marginal product diminishes and ~~Here, the curve finally~~ marginal cost ~~is~~ rises.

2

Write in the box the number of the question you are answering on this page as it is designated in the examination.

(c) The ~~the~~ vertical distance between curve 2 and curve 3 is average fixed cost. Because the curve 2 is the average total cost curve and the curve 3 is the average variable cost, ~~when the~~ ~~ATC~~ ~~is~~ it's average fixed cost. ~~ATC~~ is the sum of AVC and AFC.

(d) As output increases, it means the quantity ~~of~~ increases. Average ~~total~~ ^{fixed} cost ~~is~~ ~~the~~ appears when ~~the~~ ~~fixed~~ cost is divided by the quantity of output. Therefore, as output increases, the vertical distance decreases.

(e) R, S

Write in the box the number of the question you are answering on this page as it is designated in the examination.

2

(a) (i) Curve 1 is the Marginal Cost Curve

(ii) Curve 2 is the Average Total Costs Curve

(iii) Curve 3 is the Average Variable Costs Curve

(b) (i) When a business first gets started, it costs less for every new unit made because they ~~are~~ ~~receive~~ are very small at the time. ~~The~~ Every additional unit of output initially costs less than the one before it.

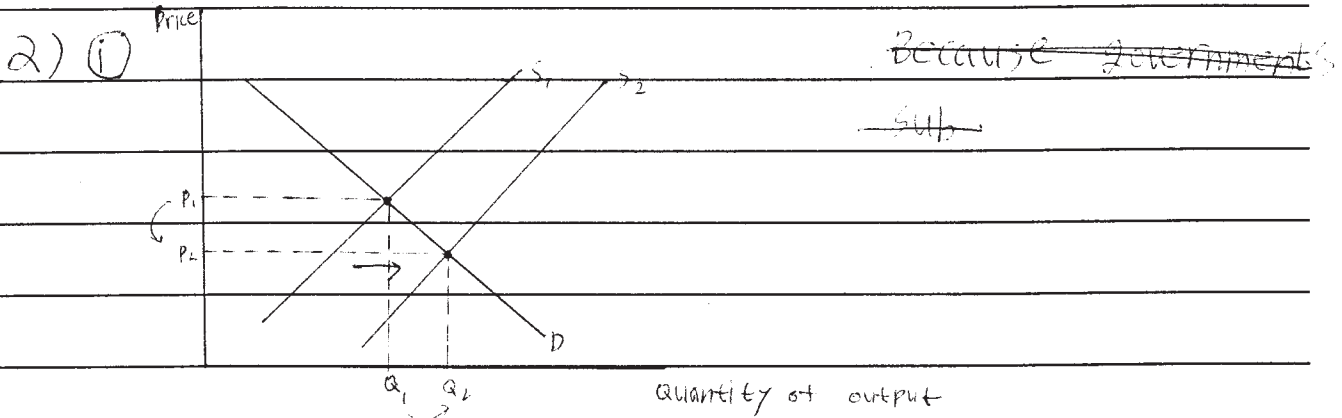
ii) As the business continues, eventually output will start to cost more for every additional piece of output. It increases because every additional piece of output costs more than the one before it.

c) Between curve 2 and curve 3, Average Fixed Costs is represented. $AFC + AVC = ATC$

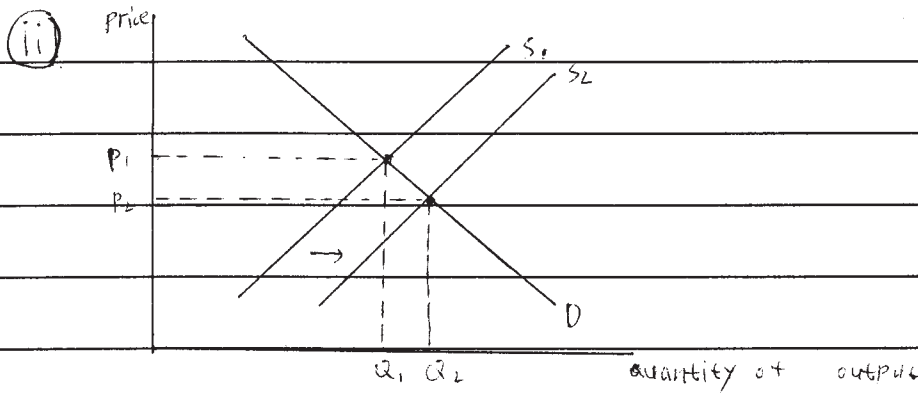
d) When the business begins, it only has fixed costs which account for the majority of total costs. As the business grows, ~~AFC~~ ^{Total Fixed Costs} ~~stay~~ stay the same while AVC increases. Average variable costs become the majority of the business costs as it gets bigger causing fixed costs to be a very small part of the ATC. This is why the ~~gap~~ gap gets smaller as output increases.

e) K and L are two points on this firm's short run supply curve because the MC curve above MR is the supply curve.

Write in the box the number of the question you are answering on this page as it is designated in the examination.



Because government's subsidize on the production of wheat reduces the cost of producing wheat, wheat's supply increases. Therefore, supply curve of wheat shift to right as S_1 shift to S_2 in above the graph. Finally, equilibrium price decreases and equilibrium quantity increases.



~~It has same effect~~

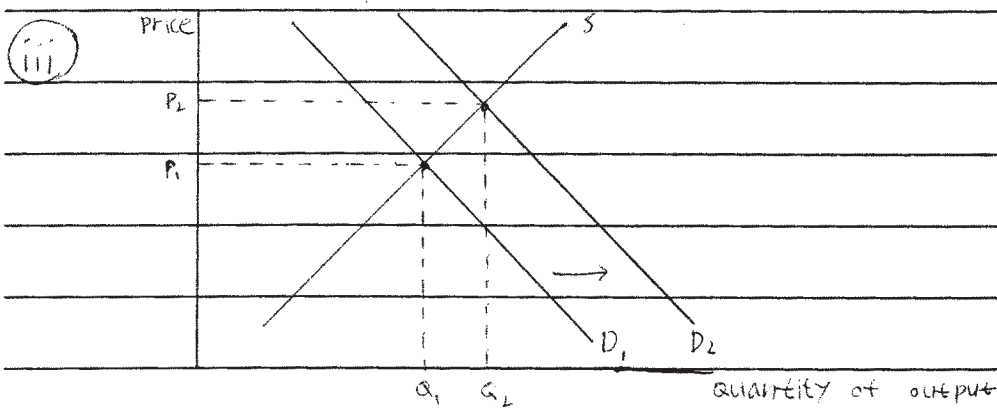
The bread market shows same effect as problem i). Because wheat is bread's ingredients, suppliers will increase the supply if cost of wheat decreases.

3A

Write in the box the number of the question you are answering on this page as it is designated in the examination.

3

We can see that wheat's price decreases in graph of problem i). Therefore, supply curve of bread shift right and equilibrium price decreases, equilibrium quantity increases



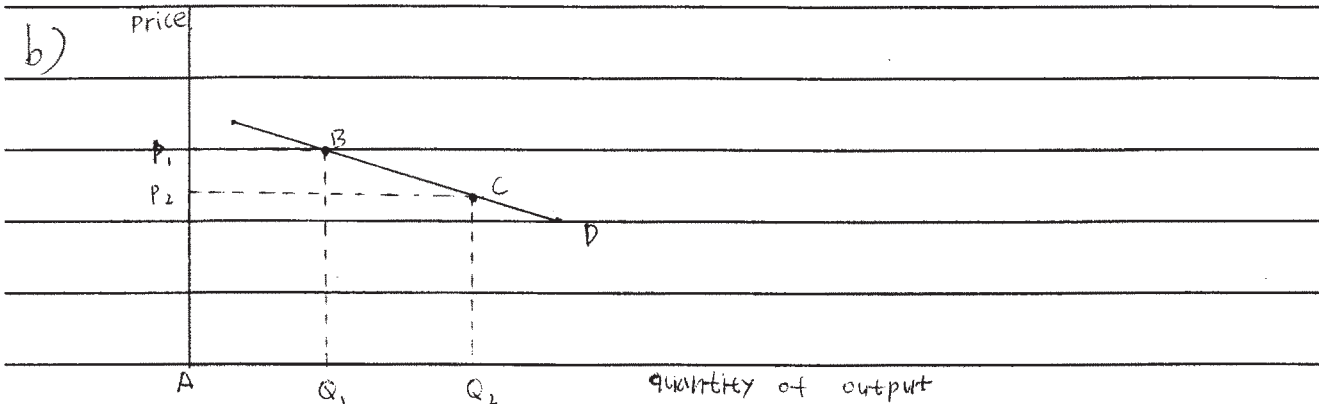
~~Because of the~~

We know that price of bread decreases in ~~the~~ problem ii). According to the law of demand, ~~the demand~~ demand increases when price decreases. So bread's demand increases. Also, bread and butter are complementary goods. So when bread's demand increases, butter's demand increases also. Therefore, butter's demand curve shifts to right as D_1 shifts to D_2 in graph above. Finally, equilibrium ~~to~~ price increases and equilibrium quantity increases

3A

3

Write in the box the number of the question you are answering on this page as it is designated in the examination.



Bread's Price decreases as we can know from problem (ii) in (2).

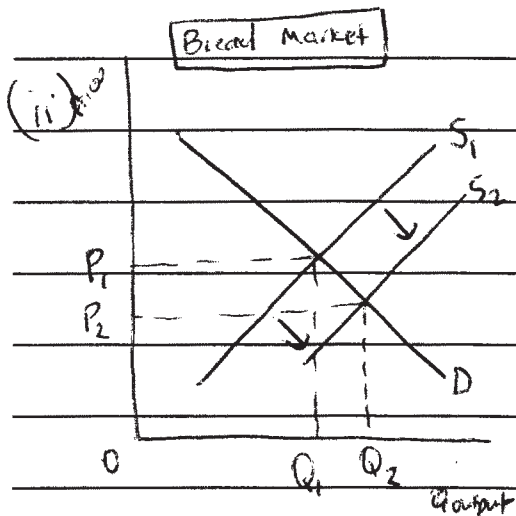
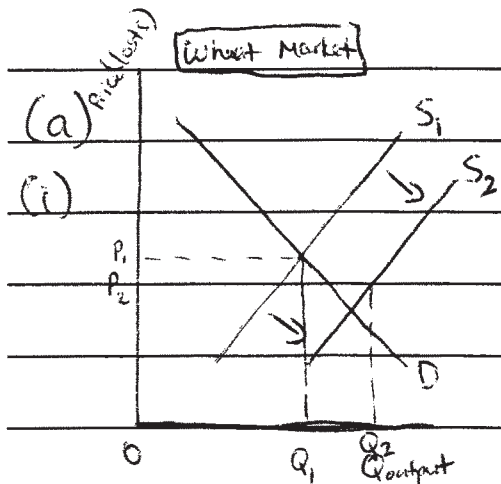
The demand curve above is Price elastic. As we can see, when Price decreases, Price decreases very little bit but quantity increases for very large amount.

Because Total revenue is Price \times Quantity, initial total revenue of bread is area $P_1 A Q_1 B$, and total revenue after subsidy is area $P_2 A Q_2 C$.

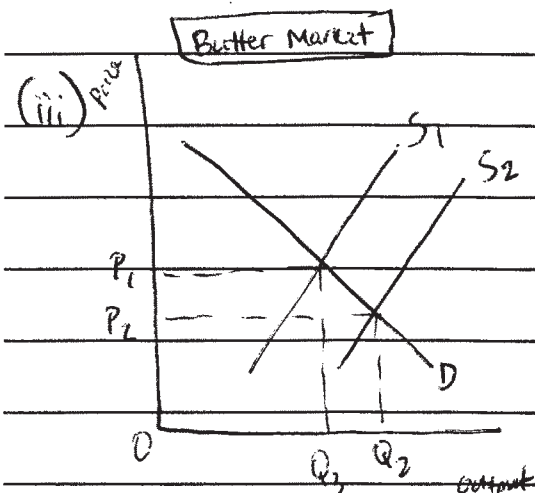
Because ~~Price~~ increase of quantity is much bigger than decrease of price, total revenues for the bread producers increases after government subsidy.

Write in the box the number of the question you are answering on this page as it is designated in the examination.

3



- Because the gov. subsidizes wheat production, there will be more wheat to produce bread, therefore, bread production will increase too.



- Because bread and butter are complementary goods, the rightward shift of the supply will cause the supply of butter to shift rightward.

(d) Total revenues for the bread producer will increase as a result of the gov. subsidy, which causes production to increase.

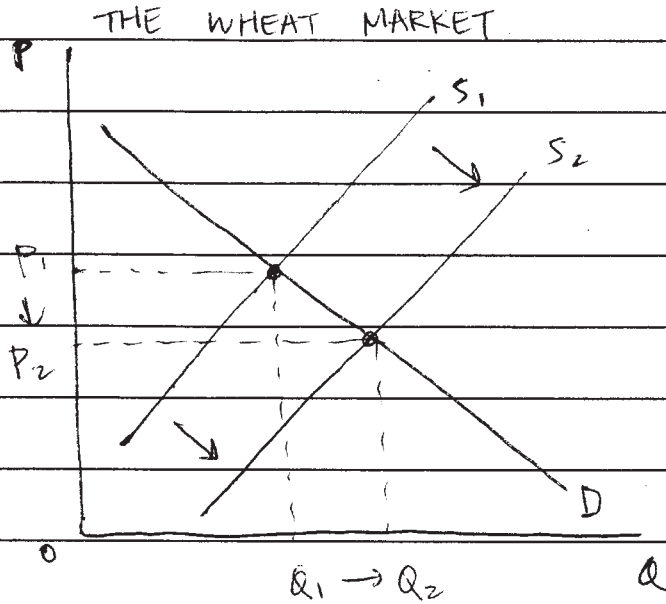
#3.

Write in the box the number of the question you are answering on this page as it is designated in the examination.

#3.

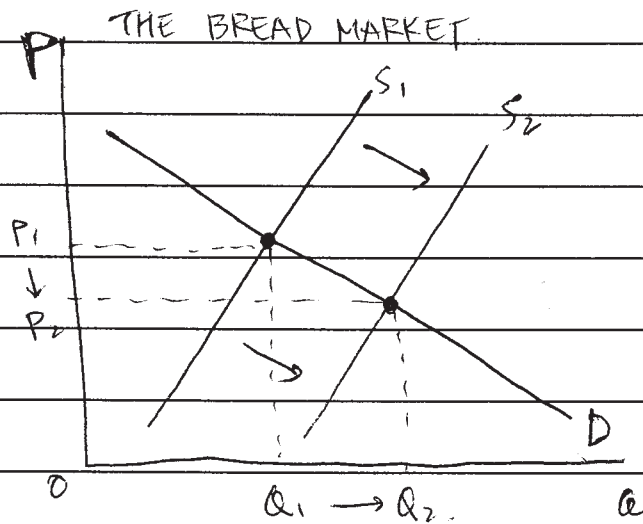
(1)

(i)



The government subsidies help the wheat market to supply more wheat. $S \uparrow \Rightarrow P \downarrow, Q \uparrow$.

(ii)



~~Since wheat and bread are complementary goods,~~

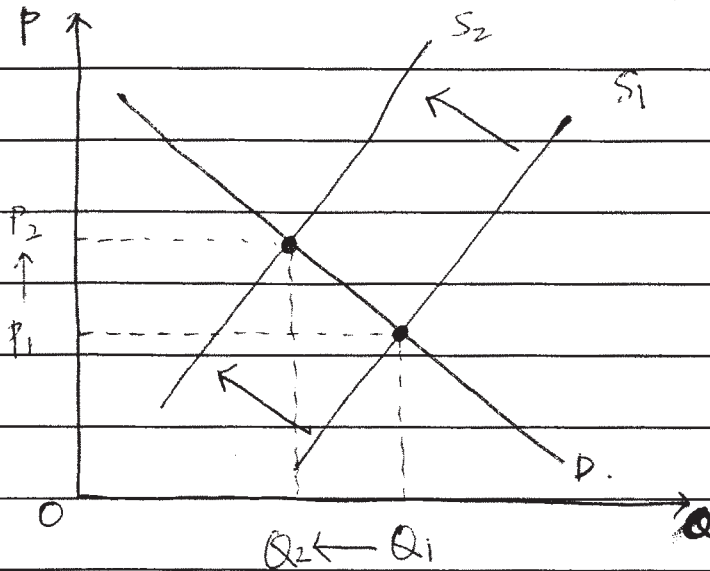
Since wheat and bread are supplementary goods, the increase in wheat supply increases the supply of bread as well. $S \uparrow \Rightarrow P \downarrow, Q \uparrow$.

Write in the box the number of the question you are answering on this page as it is designated in the examination.

#3

000
(11)

THE BUTTER MARKET



Since butter and bread are complementary goods,
the increase in supply of bread decreases the supply of
butter. $S \downarrow \Rightarrow P \uparrow, Q \downarrow$.

Back)

#3

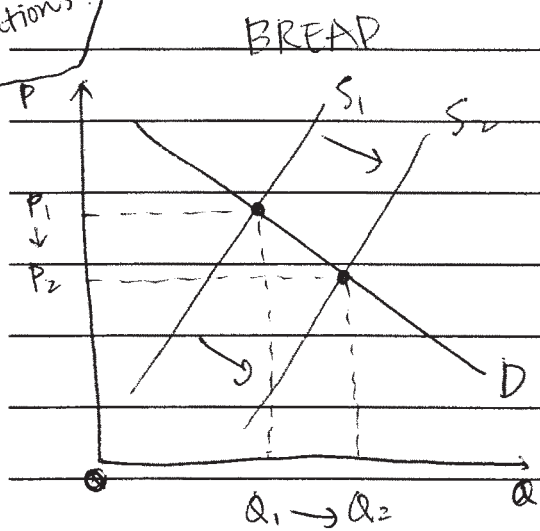
Write in the box the number of the question you are answering on this page as it is designated in the examination.

b). Bread = price elastic

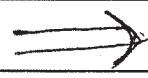
The gov subsidy $\Rightarrow S_{WHEAT} \uparrow \Rightarrow S_{BREAD} \uparrow$ (\because supplementary good) \Rightarrow for wheat mkt

$\Rightarrow P_{BREAD} \downarrow \Rightarrow$ And, because it's price elastic, as $P \downarrow \Rightarrow D \uparrow \Rightarrow Q \uparrow$.

graph explanations

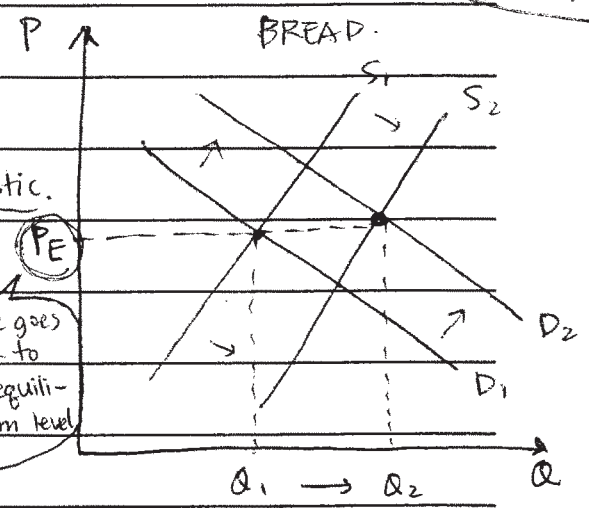


B/c it's price elastic.



Price goes back to the equilibrium level

price goes back to the equilibrium level



(As supply of wheat \uparrow),
Supply of bread \uparrow .
Price falls.

Increased output of bread.