



AP[®] Microeconomics 2002 Scoring Guidelines Form B

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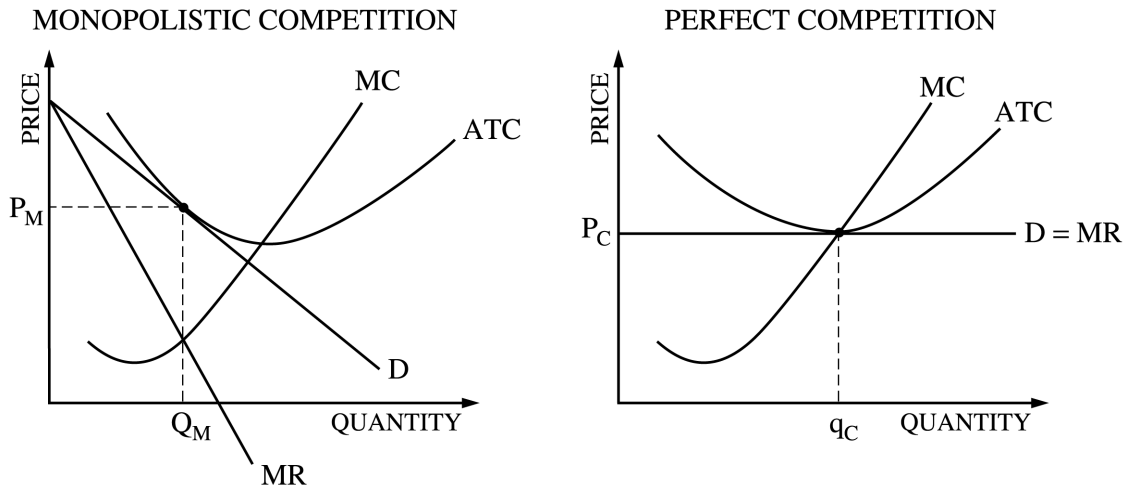
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**AP[®] MICROECONOMICS
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Question 1

Correct Answer:



- (a) See the graphs above. The long-run equilibrium price and quantity are labeled P_m and Q_m , for the monopolistically competitive firm, and P_c and Q_c for the perfectly competitive firm.
- (b) The perfectly competitive firm has a lower price and a larger quantity of output than the monopolistically competitive firm.
- (c) Each of these firms will earn zero economic profits in the long run. With no barriers to entry, the existence of positive economic profits or economic losses motivates the entry or exit of firms in and out of the industry, forcing prices to the level of average costs.
- (d) Demand is perfectly elastic for the perfectly competitive firm because price is constant, making the percentage change in price zero for any change in quantity. For the monopolistically competitive firm, demand is elastic, because MR is positive at Q_c .

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Question 1 (cont'd.)

Grading Rubric:

Question 1: 15 points (6 + 2 + 3 + 4)

(a) 6 points (1 point for each graph showing the appropriate cost curves, 1 point each for identifying profit maximizing quantity at $MC=MR$, and 1 point each for showing price for each firm—read off the correct demand curve)

1 point each: two graphs with appropriate cost curves

1 point each: Q indicated for each firm where $MR=MC$

1 point each: P for each firm read off the correct D curve at correct Q

(b) 2 points (1 point for the price comparison and 1 point for quantity comparison)

1 point: P in perfect competition is lower than P in monopolistic competition.

1 point: Q in PC is smaller than Q in MC

(c) 3 points (1 point each for indicating zero economic profit for each firm and 1 point for explanation)

1 point : firm in perfect competition earns zero economic profit

1 point : firm in monopolistic competition earns zero economic profit

1 point : entry of new firms increases industry output, individual firm's output decreases, prices will fall to level of ATC (**Correct explanation consistent with the exit of firms is also accepted**)

(d) 4 points (1 point each for correctly identifying elasticity for each firm, 1 point each for correct explanation)

1 point : for the perfectly competitive firm, demand is perfectly elastic

1 point : because P is constant, the percentage change in P is zero

1 point : for the monopolistically competitive firm demand is elastic

1 point : MR is positive in the elastic portion of the demand curve

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Question 2

Correct Answer:

- (a) The government could impose a per-unit tax on pollution.
- (b) (i) Marginal cost increases because the tax increases the cost per unit of output.
- (ii) Perfectly competitive firms select the output level at which $MC = P$. Since MC has increased, it will intersect the price line at a lower quantity.
- (iii) The supply curve will shift up by the amount of the tax, causing the price to rise.
- (c) Efficiency will increase because the tax forces the firms to internalize the full cost of their behavior, making the marginal private cost equal to the marginal social cost. At the new equilibrium, the marginal social cost will equal the marginal social benefit, indicating a socially efficient outcome.

Grading Rubric:

Question 2: 8 points (1 + 5 + 2)

(a) 1 point for a correct policy

1 point: government can impose a per-unit tax on pollution, sell pollution permits, restrict quantity, or require emissions reduction equipment

(b) 5 points (1 point for MC, 1 for direction of output and 1 for explanation, 1 for direction of price and 1 for explanation)

1 point: MC increases, since the tax increases the cost per unit of output

1 point: output will decrease

1 point: explanation that MC has shifted up and the firm will select **new** output **level** where the new MC equals P

1 point: price will increase

1 point: explanation that the supply curve will shift up by the amount of the tax, causing the price to rise

(c) 2 points (1 point for efficiency and 1 for explanation)

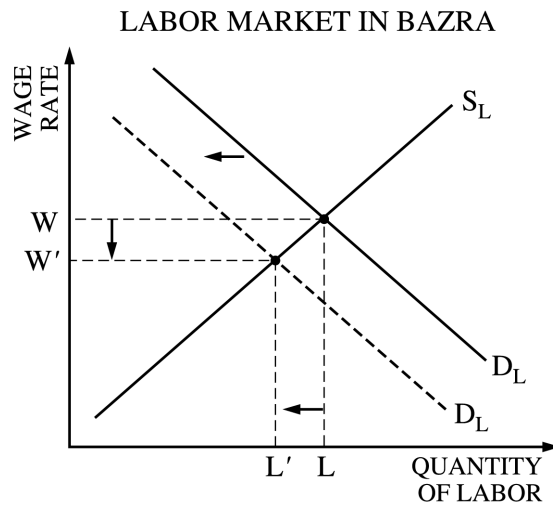
1 point: efficiency will increase

1 point: explanation that the tax shifts the supply curve up to account for the social cost of pollution, and at the new equilibrium the MSC equals the MSB

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Question 3

Correct Answer:



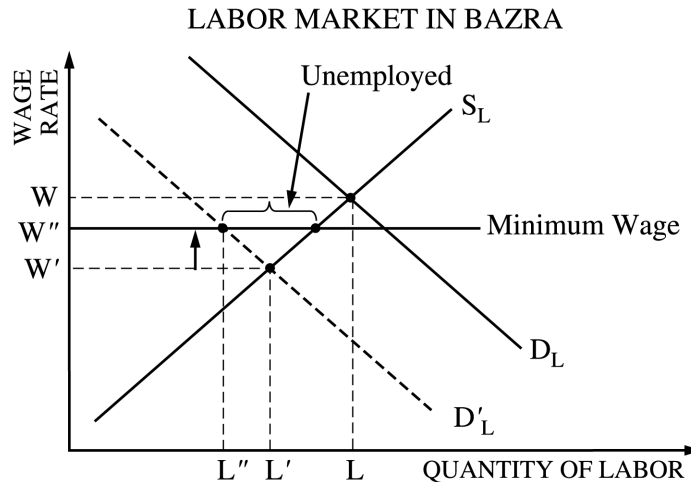
- (a) (i) See the labor market graph above. The demand for labor decreases and the demand curve shifts to the left. With the decrease in demand for labor in Bazra, the equilibrium wage rate falls from W to W' and the number of employed workers falls from L to L' .
- (ii) At the new wage rate W' , the new quantity of labor demanded equals the quantity of labor supplied, so the number of workers looking for work who cannot find it is zero.

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Question 3 (cont'd.)

(b) (i) As indicated in the graph below, an effective minimum wage will increase the wage rate and decrease the quantity of workers employed in Bazra.

(ii) The number of workers looking for work who cannot find it increases from zero to the positive number represented by the difference between the number supplied and the number demanded at the minimum wage.



(b) The demand for labor is derived from the demand for the products labor produces. An increase in the demand for goods produced in Bazra will increase the demand for labor **in Bazra**. Whether or not the increase in labor demand leads to an equilibrium wage above the minimum wage, the number of workers employed will increase.

Grading Rubric:

Question 3: 9 points (4 + 3 + 2)

(a) 4 points

- 1 point: correctly labeled graph without regard to the shift
- 1 point: shifting the labor demand curve to the left
- 1 point: (i) wage rate and the number employed would fall
- 1 point: (ii) number of unemployed workers is equal to zero

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Question 3 (cont'd.)

(b) 3 points

1 point: the wage rate will rise

1 point: the number of workers employed will fall

1 point: the number of unemployed workers will rise

(c) 2 points (1 for the direction and 1 for the explanation)

1 point: employment increases

1 point: the increased demand for goods causes the (derived) demand for labor to increase, shifting the demand curve to the right.