1. What are the basic differences between a public good and a private good?
   Ans: A public good and a private good have two distinguishing features. First, a private good is characterized by rivalry. The purchase of use of the private good by one person prevents others from purchasing and consuming the good. Second, a private good is subject to the exclusion principle whereas a public good is not. In the case of the private good, those consumers who pay for it receive the benefits. If they do not pay, they will be excluded from obtaining the private good. With a public good, once it is provided to one person it will be provided for all people, whether or not they pay for the good.

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2. In your own words, describe what free-riding means.
   Ans: Free-riding is the act of using a publicly provided good without paying for it.

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   Learning Objective: 15.1

3. How does the market demand curve for a public good differ from the market demand curve for a private good?
   Ans: The demand curve for the private good is an accurate reflection of what people are willing to pay for a quantity of the good. In contrast, the demand curve for a public good understates the true preferences of citizens. The free rider problem with a public good means that people who received the benefits of a public good do not always have to pay for the good. Once the public good is provided for one person, it is available to all. Thus, some citizens may not be willing to voluntarily pay for the public good, and as a result, people's true preferences for a public good will be understated or even nonexistent even when the collective benefits outweigh the relevant costs.

   Furthermore, the market demand curve for a private good is the horizontal sum of the individual demand curves for the good. On the other hand, since a public good is characterized by non-rivalry, its collective demand is the vertical sum of individual demand curves.

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4. Explain the difference between a public and private good. Describe the rationale behind supply and demand analysis for public goods.
   Ans: A public good is one, which is not subject to rivalry, and one for which the exclusion principle does not apply. With a private good, the market demand is determined by adding the quantities demanded people are willing to buy at each possible price whereas with a public good, the collective demand is found by adding together the prices people are willing to pay for the last unit of the public good at each possible quantity demanded. The demand curve for a public good slopes downward because of the law of diminishing marginal utility. The supply curve for a public good is upward sloping because of the law of diminishing returns. The demand curve for a public good is, in essence, a marginal benefit curve; the supply curve for a public good reflects rising marginal costs. The optimal quantity of a public good is found at the intersection of the collective demand and supply curves where the marginal benefit of the last unit equals that unit's marginal cost.

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5. Data on two individuals' preferences for a public good are reflected in the table below. P_A and P_B represent the prices individuals A and B, the only two people in the society, are willing to pay for an extra unit of a public good, rather than do without.

Quantity	P_A	P_B
2	\$12	\$11
3	10	9
4	8	7
5	6	5
6	4	3
7	2	1

(a) Complete the table below showing the collective willingness to pay for the public good in this society.

Q_d	Price	Q_s
2	\$_____	8
3	_____	7
4	_____	6
5	_____	5
6	_____	4
7	_____	3

(b) Given the supply schedule for this public good as shown by the Q_s column, what is the optimal quantity of this public good and what is the optimal price?

(c) What is the perceived marginal benefit and perceived marginal cost when 4 units of the public good are supplied? What does this indicate about the allocation of resources to this public good?

Ans:

Q_d	Price	Q_s
2	\$23	8
3	19	7
4	15	6
5	11	5
6	7	4
7	3	3

(a) *See table above.*
(b) The optimal quantity is 5 units and the optimal price is \$11.
(c) The marginal benefit of the public good is \$15, but the marginal cost is only \$7. There is an under-allocation of resources to the public good.

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6. Data on two individuals' preferences for a public good are reflected in the table below. P_A and P_B represent the prices individuals A and B, the only two people in the society, are willing to pay for the last unit of a public good, rather than do without.

Quantity	P_A	P_B
1	\$36	\$35
2	30	30
3	24	25
4	18	20
5	12	15
6	6	10

(a) Complete the table below showing the collective willingness to pay for the public good in this society.

Q_d	Price	Q_s
1	\$_____	7
2	_____	6
3	_____	5
4	_____	4
5	_____	3
6	_____	2

(b) Given the supply schedule for this public good as shown by the Q_s column, what is the optimal quantity of this public good and what is the optimal price?

(c) What is the perceived marginal benefit and perceived marginal cost when 3 units of the public good are supplied? What does this indicate about the allocation of resources to this public good?

Ans:

Q_d	Price	Q_s
1	\$71	7
2	60	6
3	49	5
4	38	4
5	27	3
6	16	2

(a) *See table above.*
(b) The optimal quantity is 4 units and the optimal price is \$38.
(c) The marginal benefit of the public good is \$49, but the marginal cost is only \$27. There is an under-allocation of resources to the public good.

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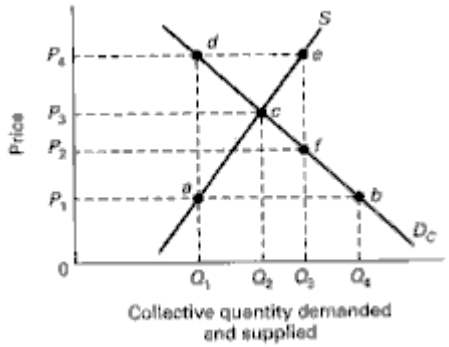
7. The next three questions refer to the below supply and demand graph for a public good.



(a) What does point *c* represent?

(b) What does the line segment *ef* at output Q_3 represent?

(c) At what output level is there an underallocation of resources to the production of this public good?

Ans: (a) Where the marginal benefit of an additional unit of a public good is just equal to the marginal cost of an additional unit of the public good.

(b) The difference between the marginal cost of an additional unit of the public good and the marginal benefit of the additional unit of the public good. In this case, MB < MC, so there is an overallocation of resources to the production of a public good at Q_3.

(c) At less than Q_2 units of the public good.

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8. Imagine that a provincial government is considering the construction of a new office building to consolidate its operations. Its estimate of the total costs and the total benefits of building a 4- 6-, 8-, or 10-story building is shown in the table below. (All figures are in millions of dollars.)

Project	Total cost	Marginal cost	Total Benefit	Marginal benefit
No building	$0		$0	
4-story building	7	$_____	8	$_____
6-story building	16	_____	23	_____
8-story building	24	_____	28	_____
10-story building	34	_____	31	_____

(a) Compute the marginal cost and the marginal benefit of the 4-, 6-, 8-, and 10-story buildings.

(b) Should the state build a new office building? If so, what size building and what will be the total benefit, total cost, and *net* benefit to society?
Ans:

Project	Total cost	Marginal cost	Total Benefit	Marginal benefit
No building	$0		$0	
4-story building	7	$7	8	$8
6-story building	16	9	23	15
8-story building	24	8	28	5
10-story building	34	10	31	3

(a) *See table above.*
(b) Yes, the government should build a 6-story building. The total cost of building a 6-story building is $16 million. The total benefit is $23 million. The net benefit is $7 million.

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9. Evaluate. Economy in government requires that government minimize its spending.
Ans: Economy in government refers to government using scarce resources efficiently. Efficiency requires that the marginal benefit to society of a government project be equal to its marginal cost and that net benefits are maximized. Minimizing government spending does not necessarily achieve economy in government. For example, when the marginal benefit to society exceeds the marginal cost, the government must increase spending on the project achieve economy.

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Learning Objective: 15.1

10. What are negative and positive externalities? How do they affect supply and demand curves?
    Ans: Negative externalities or spillover costs result in an over-allocation of resources to the production of a product. All the costs associated with the product are not reflected in the supply curve. The producer's supply curve lies to the right of the full-cost supply curve. Positive externalities or spillover benefits result in an under-allocation of resources to the production of a product. All of the benefits associated with the product are not reflected in the demand curve. The demand curve lies to the left of the full-benefits demand curve.

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    Learning Objective: 15.2

11. How could you use the Coase theorem to predict what would happen when smoke from a factory created dirty air and slightly acid rain for all the residents in the area in a one-kilometre radius of the plant?
    Ans: Under the assumptions of the Coase theorem, either the property owners would have the rights to clean air or the factory would have the property rights to pollute the air in that neighbourhood. If the property owners had rights to clean air, the factory would want to see if it could buy the rights at a cost less than the cost of purifying its emissions. The residents in turn would have an incentive to determine how much the factory would be willing to pay them for their clean air rights. Negotiations between the two parties would lead to an "efficient" outcome: an optimal amount of pollution based upon the marginal costs and benefits of clean air.

    If the factory initially owned pollution rights for the area, then the property owners would have to decide how much they would be willing to pay to get the factory to reduce or eliminate the pollution. The factory has an incentive to negotiate with the residents to find out whether those affected negatively by the pollution would be willing to pay the factory an amount greater than what it would cost the factory to clean up some or all the pollution. Once again the Coase theorem would predict that the two parties will negotiate an economically efficient outcome.

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    Learning Objective: 15.2

12. Under what circumstances might the Coase theorem *not* be applicable? Apply these circumstances to an example to illustrate your point.
    Ans: When property rights are not clearly defined, the number of people involved is large, and bargaining costs are high, the Coase theorem may not apply. Acid rain in both the United States and Canada can affect people in both nations. In this case, the property rights are not clearly defined regarding externalities from rainfall. The number of people involved in both nations is large. Also the costs of bargaining are high given the geographic range of the problem and the number of people involved. Thus, the problem will be resolved through government negotiations between the two nations.

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    Learning Objective: 15.2

13. What is the economic rationale for liability rules and lawsuits? What are the limitations with this approach?
    Ans: Liability rules help to specify property rights. If one party feels that it is adversely affected by the actions of another party that violated those liability rules, then the first party can sue in court for redress of the negative externalities created by the second party.

    The lawsuits to correct negative externalities can be costly for the party that brings the suit and also take many years to resolve. The outcome of the case is also uncertain, so there is some risk in bringing a suit to court.

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    Learning Objective: 15.2

14. How do direct controls and specific taxes affect negative externalities? Briefly explain in terms of supply and demand.
    Ans: If a good generates a negative externality then the market tends to over-allocate resources to the production of that good and consequently produces too much of it. Direct controls through laws or regulations that limit private activity are commonly used to curb this over-production, either through restricting production or raising the private costs of doing business and decreasing the supply curve, thus raising product price and decreasing output. Similarly, the imposition of a tax on a polluting firm will raise the cost of doing business. This action will decrease supply, raising price and reducing output.

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    Learning Objective: 15.2

15. What resource problem is created by negative externalities and what methods are suggested for dealing with this problem?
    Ans: When spillover costs arise in production, firms are not paying the full costs of production and an overallocation of resources to the industry occurs. The five ways for correcting for this overallocation of resources are: (1) individual bargaining; (2) the use of liability rules and lawsuits; (3) imposing a tax on producers; (4) direct controls such as legal mandates or restrictions; and (5) creating a market for externality rights.

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    Learning Objective: 15.2

16. The demand and supply in a market are represented by the equations $P = 50 - .2Q_D$ and $P = 20 + .3Q_S$. A spillover cost in production equal to $2 per unit exists in this market.

    (a) What are the equilibrium price and quantity?

    (b) What are the optimal price and quantity?

    (c) How large must a specific tax in this market be to eliminate the market failure? Is the tax equal to the difference between the equilibrium price and the optimal price?
    Ans: (a) The equilibrium price and quantity are $38 and 60 units of output.

    (b) The optimal price and quantity are $38.80 and 56 units of output.

    (c) A $2 per unit tax is required. The tax needs to be the same as the spillover cost. Even though the optimal price is only $.80 more than the equilibrium price, it must be recognized that the burden of the specific tax is shared by both buyers and sellers. Buyers pay $.80 of the $2 tax while sellers bear $1.20 of the tax.

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    Learning Objective: 15.2

17. What resource problem is created by positive externalities and what methods are suggested for dealing with this problem?
    Ans: When there are spillover benefits in the production process, this causes an under-allocation of resources to the production of a product. The reason for the under-allocation is that the firm is not receiving all the benefit from producing the product. Some of the benefits spill over to a third party. The four suggested ways for correcting for this under-allocation of resources are: (1) individual bargaining; (2) a subsidy to consumers; (3) a subsidy to producers; and (4) government provision of the product.

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    Learning Objective: 15.2

18. Explain the idea of the tragedy of the commons.
    Ans: The reason that air, water, and public lands are objects for pollution or abuse is that the rights for those resources are held in common by society. No individual has ownership or control over those resources and thus the monetary incentive to maintain their quality or to limit overuse or abusive practices. Private property owners have an economic incentive to maintain their property because they might wish to sell it to others. In the case of common property resources there is no monetary incentive and thus people will overuse the resource or treat it as if it were a free good. As a consequence, the internal costs associated with pollution or overuse are not paid for by the individuals who create them but rather they are transferred to society as an external cost.

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    Learning Objective: 15.2

19. Why are the blackberries obtained from public lands smaller in size than those sold in produce markets?
    Ans: This can be explained by the tragedy of the commons. Public lands are common resources and as such, no one has the incentive to maintain or improve the quality of these resources to produce better blackberries. Specifically, no individual would be willing to thin out the growth of blackberry canes and to fertilize the land to produce larger blackberries. Access to the blackberries is open to all. Therefore, others would reap the fruits of an individual's efforts to produce larger blackberries. Furthermore, individuals will pick blackberries when they are undersized lest someone else pick the fruit before they can. On the other hand, blackberries sold in produce markets are grown on private land. The growers have a profit incentive to produce the highest quality product.

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    Learning Objective: 15.2

20. Explain the statement: "Clean air and water have become increasingly scarce and valuable resources because they have been treated in the past as if they were free and unlimited in supply." What methods might be used to internalize spillover costs?
    Ans: Reasons why environmental pollution has become a major problem are that most pollution costs are external to the producer and user so that they have little incentive not to pollute. Rights to air and water have been traditionally treated as common-property resources with no price attached to their use, a situation called the "tragedy of the commons." The excessive pollution that has resulted means that both clean air and water are now scarcer commodities.

    Negative externalities from pollution can be internalized through the use of emission fees (pollutant taxes), markets for pollution rights, and, in some cases, private negotiations. The private negotiations, however, will only occur if the assumptions of the Coase theorem are met: if property rights are defined, bargaining costs are low, and the number of individuals involved is small.

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    Learning Objective: 15.2

21. Describe how a market for externality rights would work in terms of supply and demand.
    Ans: A regional government, for example, might proscribe a set amount of air pollution that it would be willing to accept from businesses. If this were the case, the supply curve for the air pollution rights would be perfectly inelastic. The demand curve for air pollution rights would be downward sloping and would intersect the supply curve to determine the price for the right to pollute the air in that region. Polluting firms would have the right to trade their pollution permits; firms finding it inexpensive to reduce pollution would sell their permits to firms that found it too expensive to reduce emissions.

    If the demand for air pollution rights increased over time, then the price would rise but the quantity would stay the same. Similarly, an environmentally conscious government could reduce the cap on air pollution over time (i.e., decrease supply) and this too would have the effect of raising prices.

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    Learning Objective: 15.2

22. Assume the atmosphere of an urban area is able to reabsorb 4,000 tonnes of pollutants per year. The schedule below shows the price polluters would be willing to pay for the right to dispose of 1 tonne of pollutants per year and the total quantity of pollutants they would wish to dispose of at each price.

Price (per tonne of pollutant rights)	**Total quantity of pollutant rights demanded (tonnes)**
$0	8,000
1,000	7,000
2,000	6,000
3,000	5,000
4,000	4,000
5,000	3,000
6,000	2,000
7,000	1,000

(a) If there were no emission fee, how many tonnes of pollutants would there be and how much greater would this amount be than the capacity for re-absorption?

(b) What pollution fee should the urban authorities charge to solve the problem?

(c) What would happen in this market for pollution rights if quantity demanded increased by 1,000 tonnes at each price?

Ans: (a) If there were no emission fee, polluters would put 8,000 tonnes of pollutants in the air each year. This quantity of pollutants would exceed the ability of nature to reabsorb them by 4,000 tonnes.

(b) To reduce pollution to the capacity of the atmosphere to recycle pollutants, an emission fee of $4,000 per tonne should be set and total emission fees would be $16 million [4,000 x $4,000]

(c) If the quantity of pollution rights demanded at each price were to increase by 1,000 tonnes, the emission fee could be increased by $1,000 to $5,000 and total emission fees collected would be $20 million [4,000 x $5,000]

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Learning Objective: 15.2

23. Assume the atmosphere of an urban area is able to reabsorb 8,000 tonnes of pollutants per year. The schedule below shows the price polluters would be willing to pay for the right to dispose of 1 tonne of pollutants per year and the total quantity of pollutants they would wish to dispose of at each price.

Price (per tonne of pollutant rights)	**Total quantity of pollutant rights demanded (tonnes)**
$0	13,000
1,000	12,000
2,000	11,000
3,000	10,000
4,000	9,000
5,000	8,000
6,000	7,000
7,000	6,000

(a) If there were no emission fee, how many tonnes of pollutants would there be and how much greater would this amount be than the capacity for re-absorption?

(b) What pollution fee should the urban authorities charge to solve the problem?

(c) What would happen in this market for pollution rights if quantity demanded increased by 1,000 tonnes at each price?

Ans: (a) If there were no emission fee, polluters would put 13,000 tonnes of pollutants in the air each year. This quantity of pollutants would exceed the ability of nature to reabsorb them by 5,000 tonnes.

(b) To reduce pollution to the capacity of the atmosphere to recycle pollutants, an emission fee of $5,000 per tonne should be set and total emission fees would be $40 million [8,000 x $5,000].

(c) If the quantity of pollution rights demanded at each price were to increase by 1,000 tonnes, the emission fee could be increased by $1,000 to $6,000 and total emission fees collected would be $48 million [8,000 x $6,000].

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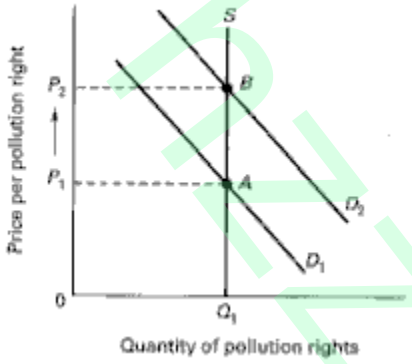
Learning Objective: 15.2

24. Draw a supply and demand graph on the below diagram that illustrates the market for pollution rights. Label the axes and curves. Then show what happens to price and quantity when the demand for pollution rights increases in the market.



Ans:

Demand increases from D_1 to D_2, which raises price from P_1 to P_2. The equilibrium moves from A to B. The quantity remains the same at Q_1 because the supply of pollution rights is fixed by government in the market and perfectly inelastic at Q_1.

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Learning Objective: 15.2

25. Evaluate: "Pollution is undesirable. Therefore, all pollution should be banned."
Ans: The economist would argue that it is necessary to weigh the marginal cost of pollution abatement against the marginal benefit to society of pollution abatement to determine the optimal level of pollution for society. In most cases, the marginal cost of pollution abatement activity that is necessary to eliminate all pollution will be much greater than the marginal benefit to society. People will not be well-served by a no pollution policy because it will be very costly in terms of resources devoted to pollution control and other productive activity that must be curtailed to eliminate the pollution.

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Learning Objective: 15.2

26. The following table shows marginal costs and benefits of the optimal quantity of pollution abatement that will occur at a local factory.

Quantity of pollution abatement	Marginal cost	Marginal benefit
700 tonnes	$100,000	$20,000
600 tonnes	60,000	30,000
500 tonnes	40,000	40,000
400 tonnes	20,000	60,000
300 tonnes	10,000	80,000
200 tonnes	5,000	160,000

(a) What is the optimal level of pollution abatement? Why?

(b) If the marginal benefit of pollution abatement were to increase by $30,000 at each level because of the factory's desire to improve its image and environment, what would the optimal level be? Why?

(c) What might cause the optimal level of pollution abatement to be 400 tonnes?
Ans: (a) 500 tonnes because the marginal cost of pollution abatement just equals the marginal benefit of $40,000.

(b) 600 tonnes. MC of $60,000 equals MB of $60,000.

(c) If marginal costs increased by $40,000 or the marginal benefit declined by $40,000.

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Learning Objective: 15.2

27. The following table shows marginal costs and benefits of the optimal quantity of pollution abatement that will occur at a local factory.

Quantity of pollution abatement	Marginal cost	Marginal benefit
200 tonnes	$300,000	$20,000
180 tonnes	180,000	30,000
160 tonnes	120,000	40,000
140 tonnes	60,000	60,000
120 tonnes	30,000	80,000
100 tonnes	15,000	160,000

(a) What is the optimal level of pollution abatement? Why?

(b) If the marginal benefit of pollution abatement were to increase by $150,000 at each level because of the factory's desire to improve its image and environment, what would the optimal level be? Why?

(c) What might cause the optimal level of pollution abatement to be 120 tonnes?

Ans: (a) 140 tonnes because the marginal cost of pollution abatement just equals the marginal benefit of $60,000.

(b) 180 tonnes; MC of $180,000 equals MB of $180,000.

(c) If marginal costs increased by $50,000 or the marginal benefit declined by $50,000.

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Learning Objective: 15.2

28. Discuss the issue of climate change. Define the problem, explain the proposed solutions, and describe the views of economists on the issue.
    Ans: Climate change is the situation where carbon dioxide and other gas emissions from industrial production accumulate in the atmosphere and create a greenhouse effect. This effect causes temperatures of the earth to rise and also creates climate changes in regions of the world. Ocean levels can rise and rainfall patterns can be altered that adversely affect some regions of the world and are beneficial to other regions.

    The response of the world's nations has been to seek to limit the emission of carbon dioxide and related gases that cause the greenhouse effect. The provisions of the Kyoto Protocol of 1997 sought to cut gashouse emissions in industrially advanced nations by 6 to 8 percent. A major problem with this proposal is that it would force these nations to cut industrial production, and it is not clear that they will agree to do so. Also, major nations such as China and India are exempt from reducing emissions under the document. The protocol also permits the buying of tradable emissions credits from other nations as a way to meet the emission requirement, a practice that is subject to controversy.

    Economists see the issue from a cost-benefit perspective. The costs of pollution abatement should not be greater than the benefit to society from reducing the effects of greenhouse gases. Equally, there is controversy over whether it makes more sense to spend money investing in greenhouse gas reduction, mitigating the effects of climate change, or some sort of hybrid of the two policies. Economists also recognize that market forces (prices and profits) provide incentives for producers and consumers to adjust to the climate changes to achieve the desired outcomes. To this end they have proposed two possible solutions: a carbon tax or a cap-and-trade system for carbon emissions.

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    Learning Objective: 15.2

29. What are information problems affecting sellers? Give an example that illustrates how these types of problems are resolved.
    Ans: Information problems arise when either buyers or sellers have incomplete or inaccurate information. For example, the government is involved in the inspection of meat and poultry. This action benefits both buyers and sellers because it improves consumer knowledge and reduces uncertainty. If there were no inspection, it would be costly (in terms of time and obtaining information) for buyers to judge the quality of the meat and poultry they were buying. Also, sellers benefit because it eliminates uncertainty and instability in the market caused by negligent or deceptive sellers that make buyers wary of all sellers honest or dishonest.

    Page: 363-364
    Learning Objective: 15.3

30. What is meant by the term "moral hazard"? What is an example of a moral hazard problem?
    Ans: A moral hazard results from the situation where one party to a contract or agreement changes behaviour and imposes a higher cost on the other party to a contract or agreement. Private markets, where these contracts or agreements are negotiated, will tend to under-allocate resources to the provision of goods and services in this case. For example, if the Canada Deposit Insurance Corporation, a Federal Crown Corporation, increases insurance on bank deposits, risks for both the bank depositor and the institution are reduced. However, the change may create a moral hazard problem because the bank depositor will be less concerned about the actions of the bank and the bank officers may make riskier loans because they do not have to worry as much about the effect on bank depositors.

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    Learning Objective: 15.3

31. Explain the problem of adverse selection. How might this problem affect transactions in the insurance industry?
    Ans: The adverse selection problem is an information problem that arises between buyer and seller. Buyers of a product who have the largest potential to benefit or to impose costs on a seller are also the ones most likely to enter into a contract with a seller, although the seller does not know this information ahead of time. In insurance purchases, for example, the people most likely to receive a payout from insurance are the very ones most likely to purchase insurance, but information about high-risk buyers is not known ahead of time by the seller. This adverse selection problem may result in losses that reduce the number of sellers in a private insurance market. Government intervention may be necessary to require social insurance so that a larger pool of people, rather than those most likely to benefit, purchase the insurance.

    Page: 365-366
    Learning Objective: 15.3

32. How have firms and organizations devised ways to overcome information problems without government intervention? Give three examples.
    Ans: First, many manufacturers offer warranties for products to assure consumers that the product is not a "lemon" and there is a recourse for correcting major problems with the product which will not be at the expense of the buyer. These warranties address the lack of buyer information about the seller. Second, franchising standardizes the product or the service produced by companies. This standardization gives the consumer some assurance of what to expect from each seller of that similar good or service in a different location. Third, independent organizations can produce product information reports to help consumers make decisions with more information and confidence. One example of such a guide would be the monthly Consumer Reports publication.

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    Learning Objective: 15.3

33. Describe four instances in which an under-allocation of resources will occur in markets.
    Ans: Under-allocation of resources occurs in four situations: monopolies, public goods, spillover benefits, and information failures. In monopolistic markets, firms produce a level of output where profit is maximized (MR = MC). However, at this output level, which is below the competitive market output, price and the marginal benefits to society exceed the marginal cost. Under-allocation of resources also occurs with public goods. The private sector is generally unwilling to provide public goods because of the free rider problem. Those who consume the public good can avoid paying for the good. Another instance of under-allocation of resources occurs when spillover benefits are present. Because individuals do not consider these external benefits, the market demand curve lies farther to the left than when the spillovers are accounted for. The output level that results is below the efficient level. Finally, information failures lead to under-allocation of resources. Some buyers or sellers who lack adequate information to make decisions will opt out of the market. As a result, resources will be under-allocated to that market.

    Page: 203 (Figure 8.6), 349-358, 363-366
    Learning Objective: 8.3, 15.1-15.3

34. Evaluate: "Government intervention is necessary to correct market failure."
    Ans: While government can correct market failure, there are instances where market failure can be corrected without government intervention. In the case of monopolies, technological change and creative destruction can erode monopoly power without government intervention. In the case of spillovers, individual bargaining can solve the market failure as long as property rights are well defined, the number of people involved is small and bargaining costs are low. Alternatively, lawsuits can be used to address spillovers. Again, well-defined property rights are required along with liability laws. Markets for externality rights are another approach for dealing with spillovers that can require little government involvement. In the case of information failure, firms can undertake to correct the problem by offering warranties, standardizing their products, or depending on independent information sources.

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    Learning Objective: 8.3, 15.1-15.3

35. What are the peculiarities of the health care market?
    Ans: Health care is unlike typical goods and services in that ethical issues are inescapable. Canadians generally regard health care as a right. Asymmetric information problems are a major consideration. Providers of health care have far more knowledge about medical issues than consumers of health care. Private provision of health care would be subject to the concern that providers attempt to induce patients to pay for far too much medical attention. On the other hand, consumers of health care are likely to have a tendency to assume far less responsibility for their own health and over utilize a government funded system.

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    Learning Objective: 15.4

36. What is the moral hazard problem in Canada's health care system?
    Ans: Moral hazard refers to the possibility that one party to a contract will impose higher costs to the other party of the contract. It is a common problem in insurance contracts such as health insurance. In Canada, the expenses of patients for most essential services are covered by the publicly funded health care system. There is zero deductibility in Canada's health insurance. Since patients are covered by essentially no-cost insurance, they will lead unhealthy lives and create excess demand for health care services.

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37. What is the Lojack? How does it create a positive externality?
    Ans: The Lojack is a device planted in a car (or truck) that emits radio transmissions indicating the location of the vehicle. It is used to find a car in case it is stolen. There is an obvious benefit to the vehicle owner because the recovery rate for cars with the Lojack is 90 percent versus only 60 percent for cars without the system.

    There is also a spillover benefit to society when people pay to install the Lojack in their vehicles. The Lojack enables police to arrest more car thieves, which reduces the number of car thieves who might steal other cars. Also, the device helps police identify chop shops that cut up the stolen cars for re-sale as auto parts. This reduction in chop shops also deters the theft of other cars without the Lojack device. In fact, two economists have estimated that the marginal social benefit (the marginal benefit to the individual plus the spillover benefits to other vehicle owners) from this device is 15 times greater than the marginal cost of the device.

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