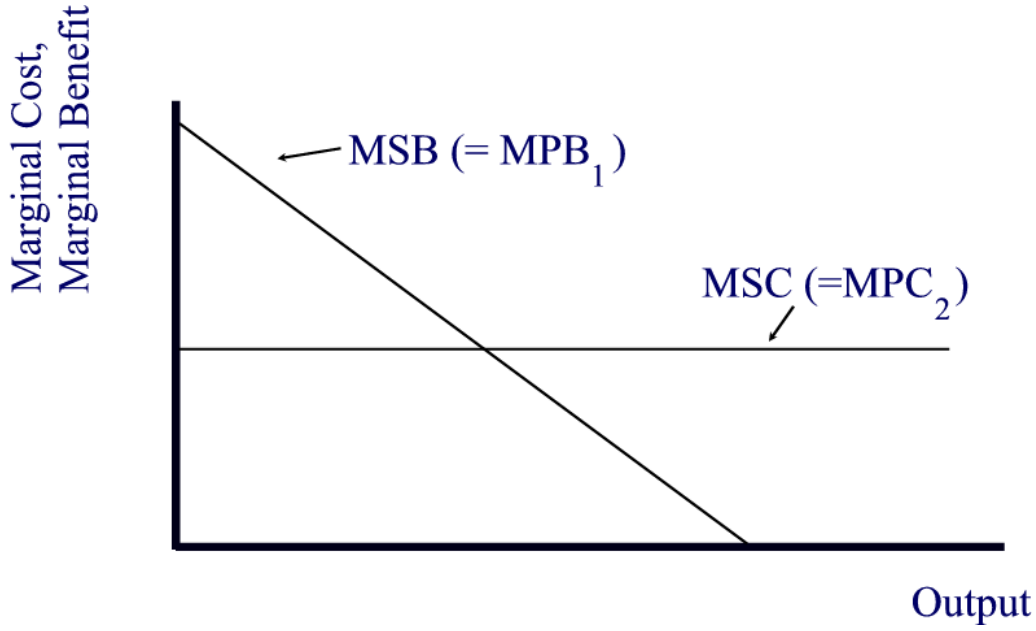
ANU School of Economics
ECON 2120 Law and Economics
Semester 2, 2003
Mid Semester Exam

Name:_____ Student Number:_____

1. Consider an economy with two firms, labelled 1 and 2. Firm 1 produces output, labelled x, and the marginal private benefits of its output are labelled MPB_1 in the diagram below. The marginal social benefits of firm 1's activity – labelled MSB – are equal to firm 1's marginal private benefits. Firm 1's output imposes a negative externality on firm 2. The marginal private costs to firm 2 are labelled MPC_2 in the diagram below. The marginal social costs of firm 1's activity – labelled MSC – are equal to firm 2's marginal private costs.



(a) What is the socially efficient level of output? Explain. Label this level of output x^* on the diagram. (10 marks)

Now consider the following three legal regimes:

- **Regime 1:** A no liability rule – firm 1 has the legal right to produce as much output as it wishes.
- **Regime 2:** Firm 2 has the legal right to stop firm 1 producing output.
- **Regime 3:** A strict liability rule – firm 1 has the legal right to produce as much output as it wishes, but is strictly liable for any damages that it causes to firm 2.

In parts (b)-(e), assume that the firms cannot bargain with each other.

(b) Suppose that the legal regime is regime 1. How much would firm 1 choose to produce? Label this level of output x_1 on the diagram. Does regime 1 produce efficient outcomes? Explain. (10 marks)

(c) Suppose that the legal regime is regime 2. How much output would firm 2 want firm 1 to produce? Label this level of output x_2 on the diagram. Does regime 2 produce efficient outcomes? Explain. (10 marks)

(d) Suppose that the legal regime is regime 3. How much would firm 1 choose to produce? Label this level of output x_{SL} on the diagram. Does regime 3 produce efficient outcomes? Explain. (10 marks)

(e) In the absence of bargaining, which legal regime does firm 1 prefer? Which legal regime does firm 2 prefer?

In parts (f) - (j) below, assume firms can bargain with each other over the level of output that is produced.

(f) Under regime 1, how output would firm 1 produce? How much would firm 2 be willing to pay firm 1 to reduce its production? Does regime 1 produce efficient outcomes? Explain. (10 marks)

(g) Under regime 2, how output would firm 1 produce? How much would firm 1 be willing to pay firm 2 to allow it to increase its production? Does regime 2 produce efficient outcomes? Explain. (10 marks)

(h) Under regime 3, how output would firm 1 produce? Would any bargaining take place? Does regime 3 produce efficient outcomes? Explain. (10 marks)

(i) With bargaining, do the final output levels in parts (f)-(h) differ? Explain. (10 marks)

(j) When bargaining is permitted, which legal regime does firm 1 prefer? Which legal regime does firm 2 prefer? (10 marks)

2. Now consider the situation in question 1 again, but suppose that there is a **negligence rule**, where the court sets a level of production z. If firm 1 produces $x \leq z$, it is not liable for any damages. If it produces $x > z$, it must fully compensate firm 2 for any damages that it causes. There are three possibilities for z:

- **Regime 4:** A negligence rule with $z = x^*$
- **Regime 5:** A negligence rule with $z > x^*$
- **Regime 6:** A negligence rule with $z < x^*$

In parts (a)-(b), assume that the firms cannot bargain with each other.
(a) Which negligence rule (if any) is efficient? Explain. (10 marks)

(b) In the absence of bargaining, which negligence rule does firm 1 prefer? Which negligence rule does firm 2 prefer? Explain. (10 marks)

In parts (c) - (d) below, assume firms can bargain with each other over the level of output that is produced.

(c) When bargaining is permitted, which negligence rule (if any) is efficient? Would bargaining take place under any of them? Explain. (10 marks)

(d) When bargaining is permitted, which negligence rule does firm 1 prefer? Which negligence rule does firm 2 prefer? (10 marks)

(e) Overall, when bargaining is permitted, which of the legal regimes 1-6 in questions 1 and 2 does firm 1 prefer? Which of the legal regimes 1-6 does firm 2 prefer? (10 marks)

3. This question refers to the table below. The table lists the levels of care, costs of care, and so on, for the injurer and a victim in a simple accident law game.

Levels of Care		**Cost of Care**		**Accident**	**Expected**	**Total**
Injurer	**Victim**	**Injurer**	**Victim**	**Probability**	**Losses**	**Costs**
None	None	0	0	16%	16	16
None	Care	0	1	13%	13	14
Care	None	2	0	10%	10	12
Care	Care	2	1	5%	5	8

(a) Suppose that there is a rule of **strict liability**. *Very briefly* explain this rule. In the table below, write down the payoffs of the players under this legal rule. What is the Nash equilibrium in this game? Is it Kaldor-Hicks efficient? Give a brief economic explanation. (10 marks)

		Injurer	
		Care	**None**
Victim	**Care**		
	None		

(b) Now suppose that there is a rule of **no liability**. *Very briefly* explain this rule. In the table below, write down the payoffs of the players under this legal rule. What is the Nash equilibrium in this game? Is it Kaldor-Hicks efficient? Give a brief economic explanation. (10 marks)

		Injurer	
		Care	**None**
Victim	**Care**		
	None		

(c) Now suppose that there is a **negligence rule**. *Very briefly* explain this rule. In the table below, write down the payoffs of the players under this legal rule. What is the Nash equilibrium in this game? Is it Kaldor-Hicks efficient? Give a brief economic explanation. (10 marks)

		Injurer	
		Care	**None**
Victim	**Care**		
	None		

(d) Now suppose that there is a rule of **strict liability with a defence of contributory negligence**. *Very briefly* explain this rule. In the table below, write down the payoffs of the players under this legal rule. What is the Nash equilibrium in this game? Is it Kaldor-Hicks efficient? Give a brief economic explanation. (10 marks)

		Injurer	
		Care	**None**
Victim	**Care**		
	None		

(e) Now suppose that there is a **negligence rule with a defence of contributory negligence**. *Very briefly* explain this rule. In the table below, write down the payoffs of the players under this legal rule. What is the Nash equilibrium in this game? Is it Kaldor-Hicks efficient? Give a brief economic explanation. (10 marks)

		Injurer	
		Care	**None**
Victim	**Care**		
	None		