

GNG4170

Engineering and the Law

Final Examination

Length of Examination: 3 hours (closed book)

April 22, 2006

Professor: Cameron Tiesma

- **There are six (6) pages to the exam, including this cover page, and one double-side page showing the "definition of professional misconduct" (s. 72) and "code of ethics" (s. 77) from the *Regulations* under the *Professional Engineers Act*. You may remove this last page (if you wish) when reviewing/answering questions A3 - A5.**
- **Spend 15 minutes simply reviewing the entire examination, and, among other things, deciding which questions you will answer – remember, *you are given choices* at each stage of the exam. *If you answer more than is required, only the first-written response(s) will be considered – the 'extra' writing will be ignored.***
- **If you are making a (reasonable) assumption about a question, state the assumption(s) at the beginning of your answer.**
- **No calculators, dictionaries or other materials are permitted (excepting dictionaries which have been approved by the professor before the exam).**
- **When finished the exam, please hand-in your answer-booklets, sign-out (initialling beside your sign-in notation and indicating the number of answer booklets handed-in).**

Part A [25 marks, approx. 45 minutes]

You must answer **one** of the following two questions. *Do not answer both.*
[5 marks total, approx. 10 minutes]

A1 briefly explain:

- (a) what is required to obtain a temporary licence; and [3 marks]
- (b) whether engineers (or engineering firms) must carry professional indemnity insurance. [2 marks]

A2 briefly explain:

- (a) the disciplinary process for engineers. [3 marks]
- (b) what a "certificate of authorization" is. [2 marks]

You must answer **two** of the following three questions. *Do not answer all three.*
Attached to this exam is a copy of sections 72 (definition of professional misconduct) and 77 (code of ethics) of the regulations under the *Professional Engineers Act*. *You must incorporate the relevant provisions of s. 72 and/or s. 77 in your answers to the two questions.*

[10 marks each X 2 = 20 marks, approx. 17 minutes *each*]

A3 You have been hired by Great Conveyor Belts Ltd. ("GCB") to examine their newest line of conveyors (the "Extrema" line). This review is the result of GCB being sued by a company which purchased the Extrema line which, when installed, malfunctioned, causing items on the conveyor to be thrown onto the manufacturing plant's floor.

Under the contract, when your report is completed (and provided your findings are positive), you have agreed to be a witness at trial. You will be paid a fixed fee for this, and if GCB wins the case, you will receive a bonus of \$2,000.

Your review indicates that there is a dangerous malfunction in the Extrema line, which could cause any item on the conveyor to be thrown violently off the conveyor belt.

You report your findings to GCB, who promptly settles the civil action. The settlement is subject to a confidentiality agreement for all parties.

GCB thanks you for your work, and pays you for your review/report.

Do you have any further obligations? [7 marks]

Discuss the appropriateness of the contractual payment arrangements [3 marks]

A4 You are a volunteer director for a local charity. At one of the recent meetings, the decision is made to complete renovations at the charity's head offices. Most of the work will be superficial (painting, new faucets in the bathrooms, etc.), but the charity wants to install a ramp outside the building for people in wheelchairs.

Another director mentions to the board of directors that since you are an engineer, you should be able to complete the design for the wheelchair ramp quite easily, and for free (since it is such a minor task). That way, more money can be used for charitable purposes. You (reluctantly) agree.

You are in charge of the small engineering firm you own. You have one employee – an Engineer-in-Training (who will soon be eligible to obtain his own P.Eng licence). You assign him the task of designing the wheelchair ramp. He then completes the work.

At an annual dinner for the charity, you are surprised when you are called to the stage, thanked for the design, and offered a bottle of wine for your contribution.

Were the arrangements for completing the design appropriate? [6 marks]

Explain whether you should accept the bottle of wine. [2 marks]

If you *do* accept the wine, should you simply express your gratitude for the (unnecessary) gift and leave the stage? [2 marks]

A5 You are an engineer in charge of emissions control for a manufacturing company (you ensure that the pollution created by its manufacturing process is treated and disposed properly, and stays within legal limits).

Some of the emissions-control equipment is very old. You have assigned Xi (also an engineer) the task of reviewing the specifications and cost for a new pollution-treatment system, and to recommend a supplier for replacement equipment. Xi completes her assessment, and in her report, indicates that ABC Treatment Ltd. would be the best company to hire in the circumstances.

Your nephew, Zach, is a salesperson with ABC.

Discuss your duties/obligations in the circumstances. What should you do?
[10 marks]

Part B [75 marks, approx. 2 hours]

B1 Briefly discuss/explain **five** of the following seven terms/principles. *Do not answer all seven. Your goal should be trying to note five separate, relevant points about each.*

[5 marks each X 5 = 25 marks (total), approx. 9 minutes *each*]

- (a) statutory holdback;
- (b) piercing the corporate veil;
- (c) vicarious liability;
- (d) slander;
- (e) elements of an enforceable contract (*list* only);
- (f) identify three types of intellectual property and the length of protection for two of them; and
- (g) innocent misrepresentation.

You must answer **one** of the following three short-answer questions. *Do not answer both.* [10 marks, approx. 15 minutes]

- B2** discuss the significance of the *Ron Engineering* decision, as it relates to mistakes made in the tendering process. In your answer, explain how the law changed (from the time of the *Belle River* decision). Finally, under the current law, is the 'kind' of mistake important? [10 marks]
- B3** discuss the issue of "limitation periods" – What is a limitation period? Identify the (relatively) new Ontario Act that applies to this legal principle, and discuss the central legal points noted in the Act. [10 marks]

You must answer **two** of the three following (hypothetical) questions. *Do not answer all three.* [20 marks each X 2 = 40 marks, approx. 30 minutes each, or 1 hour (total)]

B4 A friend of yours (a P.Eng) is upset because her engineering firm is being sued in negligence by a third party (not the original, direct client). *She* was responsible for the report that is the subject of the legal action. Your friend knows *nothing* about the law. She asks that you send her an email explaining negligence law and the potential liability of her firm. She also wants to know what could be done in the future to avoid situations like this (*i.e.*, liability to third-parties who rely upon engineering reports). Draft the email.

- B5** XYZ Engineering Inc. has a contract with Mega Ltd. to provide the design for a bridge (#1). The contract states that the preliminary design must be completed by June 15th. According to the contract, if the preliminary design is completed by this date, XYZ is entitled to exercise an option to design a second bridge (#2).

As the deadline approaches, XYZ realizes that—as a result of a bad flu that spread throughout its office—it may not complete the work on time. The CEO of XYZ contacts the president of Mega, explaining that in order to meet the deadline, XYZ may have to hire extra staff to assist with the preliminary design. The president of Mega verbally confirms that as long as XYZ hands-in the preliminary design by June 30th (but *no* later), everything would be fine.

XYZ completes the preliminary design and hands it in on June 25th. Along with the design, XYZ sends confirmation that it does wish to exercise the option to complete the design for bridge #2. Mega sends a letter back indicating that it has already hired someone else to do the designs for bridge #2, since XYZ did not hand in the preliminary designs (for bridge #1) by the contractual deadline.

Was Mega entitled to refuse XYZ's exercise of the option? Fully explain the relevant legal principles.

- B6** A municipality hired Filters-R-U's ("FRU") to design and install a new filtration system for its water-treatment facilities. FRU guaranteed that the system would remove 99.9% of contaminants. The contract contained the following provision: "FRU is not responsible for *any* indirect/consequential damages which may occur as a result of FRU's work for the Municipality".

FRU's system never removed more than 80% of contaminants. One month later, the Municipality had to hire another company (Better Filters Ltd., "BFL") to *properly* design and install a system (which did, in fact, work perfectly to remove 99.9% of contaminants). The Municipality had to pay BFL an extra \$225,000 for this (over-and-above the \$400,000 contractual price already paid to FRU).

The Municipality was also successfully sued by two residents (who had become sick as a result of drinking contaminated water that had been processed using FRU's system); those judgments totalled \$100,000.

Discuss what claim(s) the Municipality can successfully make against FRU in the circumstances. In your answer, include a discussion of the development of cases concerning contracts containing terms that limit liability.

[end of exam]

[best wishes for both the summer and the future]