UNIVERSITY OF TORONTO
FACULTY OF APPLIED SCIENCE AND ENGINEERING

FINAL EXAMINATION, DECEMBER 2001
APS185S - TECHNICAL WRITING IN ENGLISH

EXAM TYPE: D
AIDS ALLOWED: Non-electronic dictionary

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This examination has two parts. You must complete Part 1 on the examination paper and Part 2 in the examination booklet. The examination is out of a total of 35 marks. Part 1 (Editing a Report) is out of 5 marks. Part 2 (Writing a Problem-Solution Report) is out of 25 marks.

Part 1: Editing a Report (5 marks)

Instructions: Find and correct 20 grammatical mistakes. There are more than 20 errors in the text; however, only the first 20 corrections will be counted. Write the corrections clearly on the report below.

Introductory summary

I had investigated the high fuel consumption reported by the Parsenons, owners of one of the bungalows has been built by Marsland Construction Company. The Marsland Construction company is not responsible for this problem. Since the insulations meets the standard when it was built in 1985. The level of fuel consumption can be reduced by insulating the basement for a cost of $450.

Background

You wrote a letter on March 12 . You had asked me to investigate the fuel consumption at the bungalow and identifying the cause of the problem and recommend how it should be solved. In additionally, you also informed me that the Parsenons had reported the high consumption during 1995.

Method

I inspected the heating system about the home. that included the gas furnace, hot air ducts and gas flow meters, also compared fuel consumption levels of Parsenon's home and 4 similar bungalows build from the same company in the same time and 4 bungalows built from another contractor on the same street. There were also temperature settings compared

Findings

From my experiment, the hot air ducts and gas flow meter were in good conditions. However, insulation met the standards for 1985 (R16 for the ceiling and R20 for the walls). The humidifier plates in the furnace were corroded so that they would feel colder. The basement is unfinished and uninsulated.

Parsenons set their thermostat settings warmer than other homes. Another home that had like thermostat settings to Parsenons (20.5C) for both day and night versus 22.5 for the Parsenons) had a lower consumption rate because of the insulation reason in the basement. By making further comparisons with homes that were built by other contractors, there are houses that were keeping around 20.5C and with their basements insulated can save energy consumption by 65 MCF. So, if the case were that the ceiling and walls could also be insulated in addition of the basement, they would save 93.1 MCF.

Part 2: Writing a Report (30 marks)

Write a report based on the following situation.

You are an engineer with Kildare Construction Company. Your boss, Chuck Berry, has asked you to look into a problem with an old client. You were not involved with this client before, so your boss tells you the following:

Chrysler Canada Corp. owns a professional ice hockey team, called the Wheelers, which plays in Windsor, Ontario. Four years ago, Chrysler decided to build a new hockey arena for its team because the old arena was having serious problems. Chrysler hired Kildare Construction Company to manage construction of the new hockey arena. The new Windsor Arena took 18 months to construct, and when it was finished, all was well: The arena looked great, and Chrysler was pleased because Kildare met its completion deadline and finished the project over $200,000 under budget!

However, six months ago, Chrysler started calling Kildare with some complaints about the arena. The complaints were as follows:

1. Leaks have developed in one corner of the roof of the arena.
2. Some 3-cm cracks have appeared in the floor in the passages that lead from the team dressing rooms to the ice rink. A month ago, in front of TV cameras, one of the hockey players tripped over one of the cracks and twisted his ankle.
3. Recently, thousands of dollars of television equipment was damaged because water entered one of the media rooms.

Your boss explains that Chrysler is unhappy and is asking Kildare to fix the problems. Technically, your company doesn't have to do anything because the warranty ended last year. But Kildare's policy is to always try to satisfy its clients; also, Chrysler will be building a new headquarters in Windsor two years from now, and Kildare will be considered for that contract. So, your boss wants you to visit the arena, analyze the situation, and decide if Kildare is responsible for the problems. If so, he wants you to suggest a solution.

When you visit the arena, you speak to the management. They tell you the following:

1. They believe that a structural flaw in the roof support system caused water to pool in one corner of the roof instead of rolling off into drainage canals.

2. They remember Kildare's comments on a construction progress report, indicating that several trucks arrived late when concrete was being poured for the floors in the passages from the team dressing rooms. Thus, there were longer than usual delays between truck pours for the ramps.

3. The media room is in the same corner of the building as the roof leak, so the water that caused the damage must have come from the roof leak.

Your next step is to perform a physical examination of the problem areas. You climb out on the roof and look at the area where the leak occurred. The corner of the roof where the leak occurred shows several stress fractures that do not look like they are related to construction. Next, you inspect the floor of the team passages. The cracks in the floor of the team passages are significant, and look like they will get worse. Finally, you visit the media room and check the source of the water. The route of the water that entered the media room does not line up with the roof leak. However, it does line up with a bathroom on the floor above.

Afterwards, you interview the head of building maintenance to ask some questions. First, you remember that there was a very heavy ice storm a few months ago, so you ask him about ice removal from the roof; he tells you that usually his crew is good, but they forgot to clear the ice from one corner of the roof (the same corner as the leak) after the ice storm. (Your maintenance instructions had specified that excessive snow and ice could cause damage to the roof structure if it is not cleared.) You also ask him about the bathroom above the media room. He is surprised, and tells you that tells you that a member of the maintenance crew forgot to turn off a water faucet in that bathroom when he was cleaning it; the result was a large flood in the bathroom.

Finally, you study the progress reports that Kildare engineers wrote during the construction of the roof, the team passages, and the media room. You note that the delays in the pouring the cement in the team passages probably did not contribute to the cracks, since the minimum professional standards for pouring cement were satisfied. However, the number of reinforcing bars that Kildare used for the passage concrete was surprisingly small.

You consider all of your findings, and decide that Kildare is not responsible for the roof leak or the damage in the media room. However, it is responsible for the cracks in the floor of the team passages. You need to explain this to your boss; but you also need to present a solution. You decide that there are different ways the problem can be addressed:

1. Pour another layer of cement in the passages. This is a temporary solution that would simply cover the cracks without requiring any major reconstruction. It would take about 2 weeks, and the cost would be low (about $30,000). You are pretty sure that the problem would not reappear for at least 2 years.

2. Remove the floor and replace it, including additional reinforcing bars for support. This would provide a permanent solution. However, it would take longer – a total of about 2 months – and the cost would be higher (about $100,000).

Now that your investigation is complete, you must make your final decision on a recommendation, and write a report for your boss.