

**University of Saskatchewan
College of Engineering
GE 449 Midterm Examination**

Instructor: Prof. G. Wacker
Time: 1 1/2 hrs.

October 28, 1997

Marks

- 5 1. Suppose you offer some engineering advice to a friend at no cost, to what degree do you have the normal engineering responsibility and liability as to the outcome of the work? Does your answer change if the advice is or is not in your area of expertise?

- 5 2. Explain briefly what is meant by a "conflict of interest"; use an example to illustrate. What is your responsibility if you suddenly find yourself in a conflict of interest situation? If there is a disagreement as to whether a particular situation placed you in a conflict of interest position, how is it decided whether it did or did not?

- 5 3. Outline briefly an engineer's general responsibility to convey to a customer or client what might or might not be reasonably expected as outcomes of the work you intend to do for him/her. What is meant by "informed consent", under what conditions or circumstances should an engineer seek such consent, and what kind of information/agreement does informed consent include?

- 10 4. On several occasions we discussed the issue of engineers' responsibilities to public safety and welfare and contrasted these with their responsibilities to their employers. Briefly outline those two sets of responsibilities. Identify aspects or areas where these two obligations might be at odds, and describe a philosophy or approach and/or the criteria and considerations you would use in deciding how you would handle such situations.

- 15 5. Engineer Fred works for a large power utility in Canada. He is at the middle management level in the Planning Division at Head Office. The company has been constructing a major coal-fired power plant the last eight years with the original completion date scheduled for September 1, 1997. The federal requirements for stack emissions become more stringent as of January 1, 1998. About a year ago, Fred had attempted to convince the company that, as a good corporate citizen and because completion of the plant might be delayed past January 1, scrubbers and other equipment to meet the more stringent post-January 1 requirements should be installed. He had not succeeded in convincing upper management or, through them, the Board of Directors, though he had tried hard. The date of reckoning for new plants is when the plant is commissioned and goes on line. Plants existing prior to January 1 have an additional four years to comply. It is now certain that completion will be delayed by as much as three to six months past the January 1 deadline. The Vice-President of the corporation has met with Fred and suggested that he complete the commissioning documents before the end of the year. The suggestion is to attempt to "put it on line, without success", and then "shut it down for repairs". Commissioning would normally be Fred's responsibility as the engineer in charge of the Planning Division, but if he is unwilling to do it, the VP indicated that they'll get someone who will.

Identify and discuss three or four alternatives available to Fred and then prioritize them from most preferred to least preferred. State reasons for your choice(s).

***** The End *****