

- 3 2.1) Trust is an essential element in the relationship between a professional and the public. List the main factors on which this trust is based:

- 1) honesty / motivation
- 2) reliability / past performance
- 3) competence / ability

- 2 2.2) Which of the following can be considered a learned professional according to the definition used in this course and notes (circle the correct answer(s)):

Clergyperson

Baseball player

Nurse

Pro golfer

- 6 2.3) Engineering is a self-regulating profession. The Association has the responsibility, among other things, to discipline members for two types of infractions. Name the two types and briefly describe an example of each.

- 1) Professional incompetence (EX Stepping into a situation and making a professional recommendation that is blatantly wrong)
- 2) Professional misconduct (EX Doing something to tarnish the reputation of engineers like stating at a press conference that public safety wasn't a concern when it always should be)

- 2 2.4) A "conflict of interest" is best described as:

- a) situations in which two or more moral obligation's, duties, rights or ideals come into conflict with one another and it appears that not all of them can be respected.
- b) situations in which one's moral values are questioned or are in dispute.
- c) situations in which the application of science in the use of natural resources come into conflict with the environment.
- d) an interest that, if pursued, will prevent a professional from meeting his/her obligations
- e) all of the above.

- 2 2.5) Moral Dilemmas are best described as

- a) situations in which two or more moral obligation's, duties, rights or ideals come into conflict with one another and it appears that not all of them can be respected.
- b) situations in which one's moral values are questioned or are in dispute.
- c) situations in which the application of Science in the use of natural resources come into conflict with the environment.
- d) interests that, if pursued, will prevent a professional from meeting his/her obligations
- e) all of the above.

2.6) A process which tries to answer questions such as: "is the product worth the risk?", "what are the benefits?" and "who benefits?", is called a risk-benefit analysis. 2

2.7) Situation: A former employee of a Consulting firm starts a new business called "Sam's Engineering and Design Emporium". Their line of business is design of commercial buildings worth less than \$30,000. The new company does not hold a Certificate of Authorization, nor do they employ any licensed P.Engs. What part(s) of the EGP act are they violating? Comment briefly.

26(3) Using "Engineering" without written authorization of the association in their name to imply they are professional engineers 4

2.8) List and briefly describe two types of loyalty that may be exhibited by an employee.

- 1) Agency loyalty - fulfilling your duty to your employer.
- 2) Identification loyalty - personally "identifying" with the organization & has more to do with attitudes & emotions than actions 3

2.9) The firm of Elstaff and Hikkenboth specialize in the making of electronic light sensors. The design and operation of their various models are kept confidential. The first product, (A), developed by Elstaff was patented some 25 years ago.

a) How does the patent on product (A) protect Elstaff and Hikkenboth from use of their design by other companies?

Only 20 year protection in Canada but potentially it would legally prohibit other companies from using their design 4

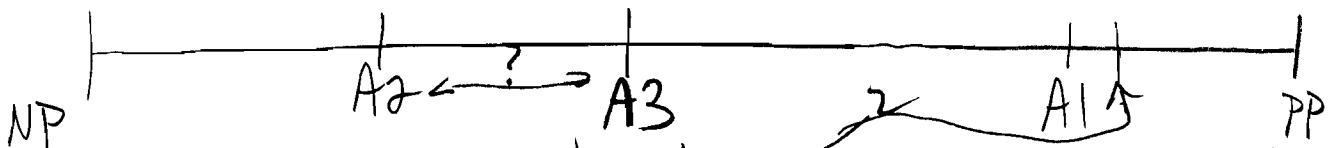
b) A second device, (B), was developed by Hikkenboth also 25 years ago, but the operation of the device is known only by Elstaff and Hikkenboth and a few of the managers. The information about device (B) is called a trade secret

- 10 2.10) Use the "line drawing" method to help analyze the moral dilemma faced by university students who are tempted to copy or "borrow from" other's assignments to varying degrees. Generate 3 or 4 alternatives in addition to the positive and negative paradigms given below. Place the alternatives on your line drawing and indicate where you would "draw the line" between acceptable and unacceptable behavior.

Negative paradigm (NP): Copy all assignments and claim for yourself

Positive paradigm (PP): Never copy or lend any assignments

- Alternative 1 (A1): Copy only parts of the assignment you couldn't solve yourself.
 Alternative 2 (A2): Copy assignments but change the work to look more original.
 Alternative 3 (A3): Copy half the assignments and do half of them.



I would draw the line somewhere just past A1 since I would prefer to have questions explained to me that I couldn't solve so I know how to do them.

- 12 2.11) Develop a code of ethics for a group of students who are working together on a fourth year design project. For each element, show which "role" of a code of ethics it satisfies.

Code	Role
• The object of this design project is to promote and improve the proficiency and competency of the group members.	Inspiration and guidance
• Any borrowing of unreasonable portions of the design from external sources is prohibited and must be reported to the group.	Support
• Each group member is responsible for the completion of their assigned portion of the project.	Education and mutual understanding
• To promote learning too much "outside" help will result in a lower mark for group contribution from other group members.	Deterrence and discipline
• Group members shall conduct themselves in a professional manner during all activities related to the design project such as presentations and design meetings.	Contribute to the professions Public image

3 1.1) Which phrase best defines "rule utilitarianism"?

- a) Moral judgment is based on an individual case by case basis
- b) Believes that ethical decisions should be based on maximizing "goodness" (most good for the most people).
- c) One should follow rules that, if generally followed, would produce the most good for the most people.
- d) Normal conventions or rules of thumb may be broken if doing so will maximize good in a given situation.

2 1.2) Which of the following phrases best describes "duty ethics"?

- a) Ethical actions can be written down as a list of obligations
- b) Based on maximizing goodness – "the most good for the most people".
- c) The basis of social welfare philosophy
- d) Assumes ethical behaviour follows from personal traits or characteristics.

2 1.3) Which of the following phrases best describes "rights ethics"?

- a) Ethical actions can be written down as a list of obligations
- b) Based on maximizing goodness – "the most good for the most people".
- c) The basis of social welfare philosophy
- d) Assumes ethical behaviour follows from personal traits or characteristics.

2 1.4) Which of the following phrases best describes "virtue ethics"?

- a) Ethical actions can be written down as a list of obligations
- b) Based on maximizing goodness – "the most good for the most people".
- c) The basis of social welfare philosophy
- d) Assumes ethical behaviour follows from personal traits or characteristics.

6 1.5) It is claimed that designing a safer product does not necessarily make the overall product costs higher.

a) Give two reasons why this may be true.

- 1) If it prevents having to fix it later overall the product will be cheaper.
- 2) Preventing potential lawsuits by making it safer.

b) Give a reason why it may be false.

- 1) You spend a lot more money on a product to make it safer after a certain reasonable point.

(15)

- 4 1.6) It has been stated that you cannot rely on codes and standards alone to design a safe product. Explain why this may be so.

You need to generate other alternatives during a design and test these. To try foresee possible misuses of a design is also beyond simply following codes & standards and verges into your creative/imaginative side.

- 2 1.7) If I am a volunteer on a board of directors and I vote to provide a contract to a company I own, then I am in an actual apparent / potential conflict of interest.

- 2 1.8) If I am a volunteer on a board of directors and it is possible that in the future, one of the possible bidders is a company that I work for, then I am in an actual / apparent / potential conflict of interest

- 2 1.9) If I am a volunteer on a board of directors and a bid is given to a company I work for but I am not present for the vote, then I am in an actual / apparent / potential conflict of interest

- 11 1.10) Assume that you have the capabilities of the fictional character "Super[wo]man", *except* that you cannot "spin the earth backwards" to go back in time. Assume further that you are aware of two simultaneous situations in two different parts of the world: one that seriously threatens the lives of your immediate family (say a car accident), and the other where an imminent explosion could wipe out a good portion of a city block potentially killing hundreds of innocent citizens and causing extensive damage. Even with your super powers, you can only make it to *one* of the locations in time to prevent a disaster. Briefly analyze this situation from the perspective of two different ethical theories that would lead to **conflicting decisions** about which course to take.

- An act utilitarian would save the hundreds of citizens because this ^{act} would lead to the most good for the most people in this case.

- A rule utilitarian would save their family if one of their moral rules was that everyone should protect their family and friends foremost before strangers.

(13)

14 1.11) You are a professional engineer employed by a consulting engineering firm. Your immediate supervisor is also a professional engineer. You have the occasion to check into the details of an invoice done on the project for which your supervisor is also the project manager, but on which you and members of the staff have done work.

You are surprised to see how much your time and the time of one of the senior engineers who report to you are charged to the job. You decide to check further by reviewing the appropriate time sheets. The time sheets show that time charged to other work has deliberately transferred to this job. You try to raise the subject with your boss but are rebuffed. You are quite sure something is wrong, but are not sure where to turn. You turn to the code of ethics for direction

Describe the ethical dilemma. Describe the main issues that have to be resolved using the following categorized: Factual, Normative (moral) and Conceptual

<p>Factual</p> <p>$1\frac{1}{2}/5$</p>	<ul style="list-style-type: none"> * You need to determine exactly how much time was charged to this job if possible. * You should find out how much this time change has affected the costs of all the related projects
<p>Normative (moral)</p> <p>$4/4$</p>	<ul style="list-style-type: none"> * Need to determine if this practice is morally wrong? (probably since other invoices for customers will be charged as well as for this project) * Determine if your duty to your company to report this is stronger than your duty to your supervisor.
<p>Conceptual</p> <p>$3/5$</p>	<ul style="list-style-type: none"> * Does this change of time allocation seriously affect other project invoices? * Is this transfer of time a serious enough problem to report it to someone in a higher position than your supervisor?

2 see when you are 905!

$8\frac{1}{2}$