PART ONE (50 POINTS) (Each question counts 2 points)

Elizabeth Dorsey, an engineer at Martex, Inc., lives in Parkville, commuting 30 miles to work, because she likes the small-town environment. She is on Parkville's Committee for Environmental Quality (CEQ). Martex wants to build a new facility in Parkville's recreational and wildlife area. Martex proposes to use only 25 percent of the area, to control air and water emissions into the area, and contribute funds for the maintenance of the remaining 75 percent of the area. On learning that Elizabeth lives in Parkville, a Martex manager asks her whether she knows any city council members well enough to talk to them about Martex's proposal. She says that she does not, even though she has had limited contact with them in her role as a member of the CEQ. When the CEQ considered whether to fight Martex's proposal, Elizabeth did not excuse herself from its deliberations.

1. An example of a **moral issue** in the case is
   a. Should the city sell the land to Martex?
   b. Should we consider Elizabeth's statement that she did not know any members of the city council a case of deception?
   c. Do the codes of professional ethics in engineering require Elizabeth to give her primary loyalty to her managers?
   d. Should Elizabeth's behavior in this case be considered a violation of the conflict-of-interest provisions in professional codes?

2. An example of a **conceptual issue** in the case is
   a. Will Elizabeth lose her job if she fails to support Martex in its attempt to buy the land?
   b. How does Elizabeth understand the term "conflict of interest"?
   c. How should we define "deception"?
   d. Was Elizabeth engaging in deception when she said she did not know city council members well enough to talk to them?

3. An example of an **application issue** in the case is
   a. Given a legal definition of conflict of interest, was Elizabeth's continuing to be a part of the CEQ deliberations when they debated the Martex proposal a case of legal conflict of interest?
   b. Is the definition of conflict of interest in the law or in professional ethics literature a more appropriate definition for this case?
Each year, about 8 million people benefit from implanted medical devices, such as pacemakers, heart valves, shunts, and hip prostheses. The devices are manufactured from materials such as titanium, Teflon, Dacron, polyurethane, polyacetals and silicone rubber. They are provided by such companies as DuPont, Dow Corning, Allied Signal, and ICI America.

Most of the biomaterials have broad markets outside their use in implants. For example, annual sales of polyacetal total $1.3 billion, of which only 0.0025% is sold for medical devices. Similarly, the annual market for ultrahigh molecular weight polyethylene is $150 million, of which only about 2.5% is used for implants. On occasion, implant devices fail due to causes such as improper installation, poor design, or inappropriate application.

In lawsuits resulting from medical device failures, it is common legal practice to sue every party connected with the medical device, such as the device manufacturer, doctor, and hospital. In the early 1990's, suppliers of biomaterials were hit with large lawsuits, even if they played no role in the design, manufacture, or sale of the medical device.

The most famous biomaterial lawsuit was filed against Dow Corning, a manufacturer of silicone used in breast implants. Although there is no scientific consensus on the connection between breast implants and disease, Dow Corning is offering a $3.2 billion settlement to end the litigation. The expense has driven the company into bankruptcy.

Another case has involved DuPont, manufacturer of Teflon. Failure of jaw-joint implants involved over 1000 litigants in 41 states and Canada. Although DuPont won the suit, the company spent many millions of dollars to defend itself, a cost that was never recovered. Jaw joint implants used only five cents worth of Teflon.

When material manufacturers compare the potential costs (legal fees, bad publicity, and employee distraction) to the meager financial gains, they often decide not to sell their materials to manufacturers of medical implants. As a consequence, medical implant manufacturers are having increasing difficulty finding suppliers. In 1997, the Health Industry Manufacturers Association (HIMA) prepared a report indicating that the supplies of some critical materials would be exhausted within eight months. The report concluded that if the situation were to continue, it would narrow medical treatment options, stagnate research and development, reduce U.S. competitiveness, and destroy small implant manufacturers. Medtronic, a Minneapolis-based manufacturer of pacemakers, has had great difficulty maintaining supplies of biomaterials and electronic components. To keep open supply lines, they must spend enormous amounts of time with suppliers explaining their products, their use, quality control steps, and the value of the technology for human health. Despite this effort, they are sometimes shunned by suppliers.

Margaret is an engineer with HiTech (HT). The company has, with Margaret's help, come out with a new material whose value for medical devices has been immediately perceived. Margaret wants to urge the company to sell the material to medical equipment
because any measure is too subjective
d. Weigh the good and bad consequences of accepting the Martex proposal in economic terms

9. In making an act utilitarian analysis of whether to accept the Martex proposal
a. The long-term consequences may not be considered
b. The question as to what would happen if all cities acted similarly in similar situations must be considered
c. The audience would include only those affected by the action
d. The effect on future generations may not be considered

10. Suppose Elizabeth tells her managers at Martex that she has never had any association of any kind with the city council members in Parkville.
   a. Since this is a lie and lying is a moralized concept, it follows necessarily that, all things considered, she should not have made this statement to her managers
   b. Lying is not a moralized concept, but we can still conclude automatically from the fact that Elizabeth lied that, all things considered, she should not have made this statement to her managers
   c. The question whether, all things considered, she should make this statement to her managers is a moral question, and it is not automatically decided by settling the application issue whether her statement is a lie.
   d. Since lying is sometimes justified, the issue of whether her statement to her managers is a lie is not an application issue.

11. Denise is an engineer at a large construction firm. It is her job to specify rivets for the construction of a large apartment building. After some research and testing, she decides to use ACME rivets for the job. On the day after she orders the rivets, an ACME representative visits her and gives her a pen and pencil set worth about $1000. She decides to do two line-drawing analyses to decide the application issue (whether the gift is a bribe) and the moral issue (whether the gift should be taken) in the case.
   a. The timing of the gift is a feature that is not appropriately placed on the chart to determine whether the gift should be taken
   b. The influence of the act of accepting the gift on the decisions of other engineers is a feature most appropriately placed on the chart to determine whether the gift should be taken
   c. Whether the gift is a bribe is irrelevant to the question whether the gift should be taken
   d. If the conclusion is reached that the gift is a bribe, the decision that the gift should not be taken follows necessarily.

12. In the first case, if the city council were to make a utilitarian analysis of the decision whether to accept the Martex proposal,
   a. The best approach is rule utilitarianism, with the rule, "Cities should allow economic considerations to override environmental ones."
   b. The audience should include future generations
   c. The audience should include only those who live in the county
b. Engineers must protect public safety

c. Engineers must avoid conflicts of interest

d. Engineers must promote and develop their profession

19. It is sometimes said that utilitarianism cannot do an adequate job of explaining the moral status of supererogatory actions (actions above and beyond the call of duty). This is because, according to utilitarianism,

   a. All supererogatory actions should be morally impermissible
   b. All supererogatory actions should be morally required
   c. All supererogatory actions should be morally permissible, but not required
   d. All actions should be considered supererogatory

20. Rule utilitarianism is, in general, more nearly adequate than act utilitarianism except in cases where

   a. The situation is extraordinary or unique
   b. There are rights that should not be violated
   c. Fairness is a crucial issue
   d. Role-centered obligations (e.g. company loyalty) are crucial

21. The first-tier rights are especially important in preserving the moral agency of individuals. Which of the following statements explain why the various first-tier rights are important from the RP standpoint?

   a. If one is deceived or cheated, she cannot effectively pursue her goals and purposes.
   b. If one's informed consent is denied, one cannot effectively pursue her goals and purposes
   c. Attacking one's bodily integrity reduces one's general level of happiness and well-being
   d. Stealing one's property causes one pain and a loss of self-respect

22. ACME tool is considering letting its internal tool and die dept. compete with external vendors in bidding on products the company needs. Which is the best rule for making a rule utilitarian analysis of this proposal?

   a. Let an inside supplier at ACME tool who is just starting out have access to the first set of bids
   b. Help your co-workers succeed
   c. Help those who are in a disadvantaged position
   d. Let inside suppliers have access to bids

23. RP morality proposes three tests to determine whether the ethics of respect for persons has been satisfied. Which of the following explains why a test is associated with the ethics of respect for persons?

   a. Rights must be respected because otherwise there will be social strife and discord
   b. The Golden Rule must be satisfied because, in doing so, people respect others' moral agency in the way they respect their own.
   c. The Self-Defeating Test must be satisfied because people can determine how they should respect others' moral agency by
determining how they would like to be respected themselves.
d. All of the above

24. When several ethical tests are used, it is possible for both RP and utilitarian tests to give the same answer ("convergence") or for them to give different answers ("divergence").
a. In the case of divergence, it is better to say that all actions are equally permissible
b. If the violation of individual rights is minimal or questionable, and the utilitarian considerations are very important, it is better to take the action suggested by utilitarianism
c. If the violation of individual rights is severe, it is better to take the action suggested by utilitarianism
d. In the case of divergence, it is better to say that no action is morally permissible

25. The American division of Ciba-Geigy Pharmaceuticals defended selling Enterovioform in India, even though it has been associated with blindness and paralysis. The drug also is one of the cheapest and best treatments of a widespread, life-threatening dysentery. You are a chemical engineer employed by Ciba-Geigy and involved in the manufacture of the Enterovioform, which will be sold in India. You wonder whether your involvement in this project is ethically justified and use a line-drawing analysis to help determine how to decide. What is an application issue in the case?
a. Given that the drug costs 5 cents/dose, is it cheap in India?
b. How many people will be able to buy the drug in India?
c. How many deaths will the drug cause in India?
d. Should the drug be sold in India?
d. The audience should include all humans, even those not affected by the actions

13. In the first case, if Elizabeth applied the **self-defeating test** to the question whether she should misrepresent her acquaintance with city council members to Martex managers, her question should be
   a. Whether she could do it if everyone did
   b. Whether most other people would be willing to do it if she did
   c. Whether she would be willing to be misrepresented to, if she were a manager
   d. Whether it would promote the general well-being if everyone misrepresented the truth to managers

14. Which of the following traits of professionals is most problematic (**less clearly true**) with respect to engineering, as opposed to medicine?
   a. Extensive intellectual training
   b. Autonomy in the workplace
   c. Self-regulating
   d. Skills vital to society

15. In *Gilbane Gold*, David Jackson considers several possible solutions to his dilemma, and the lecture notes prepared by Dr. Holtzapple describe several more.
   a. The artificial wetlands solution should be classified as a "hard choice" because it would be difficult to implement in a cold climate
   b. The ion exchange solution should be classified as a creative middle way solution
   c. Deciding to follow David's superior's suggestion to dilute the discharge from the plant should be classified as an "easy choice," because David could make it without getting into trouble with the his employer
   d. None of the above

16. Which of the following is not a goal of ENGR/PHEL 482?
   a. To learn how to deal with ambiguity
   b. To teach how to be a moral person
   c. To learn how to recognize ethical issues
   d. To learn how to apply ethical concepts to particular situations

17. In using the line-drawing method
   a. The decision should be based solely on the number of similarities and differences between the test case and the paradigm
   b. The paradigms should not have any features present in the test case
   c. All of the features should be of equal moral importance or relevance
   d. None of the above

18. In the following list, which item is not **universally** recognized by engineering codes as important?
   a. Engineers must protect the environment
c. Would the other members of the CEQ believe that Elizabeth is engaged in a conflict-of-interest situation in being a part of the CEQ deliberations when they debated the Martex proposal?
d. What is the definition of conflict of interest in the NSPE code?

4. An example of a **factual issue** (not a "fact," as we defined this term in class) is
   a. Will the Martex managers fire Elizabeth if she does not help them buy the land?
   b. Was Elizabeth engaging in deception when she said she did not know city council members well enough to talk to them?
   c. Should the city sell the land to Martex?
   d. Was Elizabeth in a conflict-of-interest situation in continuing to be a part of the CEQ deliberations when they debated the Martex proposal?

5. The closest to a **creative middle way** in this situation is
   a. Refuse to participate in CEQ deliberations on the Martex proposal, and be honest about her knowledge of city council members to Martex managers
   b. Refuse to participate in CEQ deliberations on the Martex proposal, and continue to misrepresent her knowledge of city council members to Martex managers
   c. Continue to participate in CEQ deliberations on the Martex proposal, and be honest **about** her knowledge of city council members to Martex managers.
   d. Continue to participate in CEQ deliberations on the Martex proposal, and continue to misrepresent her knowledge of city council members to Martex managers.

6. Which of the following is an **application issue**?
   a. When Elizabeth said she did not know city council members well enough to talk to them about Martex's proposal, was she lying?
   b. What is the difference, if any, between lying and deception?
   c. Do the professional codes distinguish between lying and deception?
   d. Does lying necessarily involve an intent to deceive?

7. If Elizabeth applied the Golden Rule to the question whether she should tell Martex managers about her acquaintance with city council members, she would ask
   a. Would the environment be hurt more by telling the truth or not telling the truth?
   b. Would I want to be misled if I were a Martex manager?
   c. If everyone misled managers in such situations, could I do it?
   d. Would most managers think Elizabeth's not telling the truth was disloyal?

8. In making a **cost-benefit analysis** of the Martex proposal, the Parkville city council should
   a. Give the greatest weight to economic well-being
   b. Give greater weight to those factors that can be most easily and plausibly translated into economic terms
   c. Refuse to measure considerations of beauty in economic terms,