1. In the case that opens the textbook, William LeMessurier discovered that the 59-story building he designed might not be resistant to quartering (diagonal) winds in a sixteen-year storm. Part of the problem was that the original specification for full penetration welds had been disregarded, and the joints had been bolted instead. LeMessurier designed and implemented a “fix” for the problem and a possible disaster was averted. What is a factual issue in the case?
   a. How many stories did the building have?
   b. Was the building safe, given a clear definition of “safe”?
   c. How should we define “safe”?
   d. Would the building have survived a sixteen-year storm?
   e. Both a and d.

2. What is a conceptual issue in the case in #1?
   a. How should “safe” be defined?
   b. How is a “quartering wind” defined in the building code?
   c. Will the storm coming towards New York have quartering winds?
   d. Would the storm coming towards New York be a sixteen-year storm?
   e. None of the above

3. What is an application issue in the case in #1?
   a. What is a quartering wind?
   b. How is a “quartering wind” defined in the building code?
   c. Will the storm reach New York?
   d. Was the building safe, given a clear definition of “safe”?
   e. None of the above

4. What is a factual issue in the case in #1?
   a. What is a quartering wind?
   b. How is a “quartering wind” defined in the building code?
   c. Should the city officials tell the public about the increased risk?
   d. Both b and c.
   e. None of the above
5. The Endangered Species Act allows the Federal government to prevent landowners from altering their property if doing so threatens an endangered species or its habitat. The U.S. Constitution requires that citizens must not be deprived of life, liberty, or property without due process of law. Suppose a federal agency requires Mr. Jones to refrain from any farming on part of his property, or from altering it in any way, and that he says this is a “deprivation” of his property and thus unconstitutional. Mr. Jones is making a claim about…
   a. An application issue.
   b. A factual issue.
   c. A moral issue.
   d. A conceptual issue.
   e. None of the above.

6. You are an engineer in sales trying to sell your product overseas in a foreign market. A representative of the foreign firm asks for $10,000 as a condition for buying your product. In order to complete the sale, you offer instead to take $10,000 off the price of your product. If one were using casuistry (line drawing) to determine whether taking the money off the price of the product is a bribe and were constructing a NEGATIVE PARADIGM (one in which the action is clearly a bribe), which of the features should be on the list?
   a. The quality of the product is poor.
   b. The price reduction will benefit the purchasing firm, not the leader of the firm.
   c. The product is relatively inexpensive.
   d. Both a and b.
   e. None of the above.

7. The Texas Farmer’s Exchange Insurance Co. hired Attorney A to investigate a fire, after which Farmer’s denied the claim. Then the insured sued the insurance company, using Attorney A. The court ruled that Attorney A was acting as an investigator, not an attorney, when he worked for Farmer’s and was thus not bound by attorney/client confidentiality. In making the claim in the underlined passage, the court was making a finding about…
   a. A conceptual issue.
   b. An application issue.
   c. A moral issue.
   d. The code of ethics of the legal profession.
   e. Whether attorneys are qualified to investigate fires.

8. The British House of Lords legalized the creation of cloned human embryos for research purposes in January 2001. The embryos must not be allowed to develop beyond fourteen days. Which of the following statements is correct?
   a. A moral issue in the case is whether a fourteen-day-old embryo is a human being.
   b. A conceptual issue in the case is whether “stem cells,” developed during these early days of embryonic development, can change into cells for the various organs of the body.
   c. A factual issue in the case is whether the research will actually produce any scientific knowledge that could not be obtained in other ways.
   d. Both a and c.
   e. An application issue is whether fourteen days is enough time to complete needed research.
9. Unlike most professionals, engineers do not have to be licensed to practice their profession. Which of the following features of professionalism are most likely to be weakened (for engineers) by this fact?
   a. Specialized knowledge.
   b. Skills vital to society.
   c. Self-regulation, and a code of ethics with the force of law.
   d. Intellectual training.
   e. The numbers of candidates taking the F.E. exam

10. The “Professional Conduct and Ethics” code of the Texas Engineering Practices Act
   a. Requires engineers to strive to adequately examine the environmental impact of their actions or projects
   b. Allows engineers to break confidentiality when the public health, safety, or welfare is threatened
   c. Does not allow competitive bidding for engineering services, in the private or public sector.
   d. Both a and b
   e. None of the above.

11. According to Drs. James and Heffington, the most serious fault in engineering communication…
   a. Is ambiguity, because a reader (or hearer) may think he/she understands and so makes no further inquiries.
   b. Is ambiguity, in contrast to incompleteness, because with incompleteness, a person is likely to detect incompleteness and make further inquiries.
   c. Is factual error, because a person may not have independent access to the facts.
   d. Both a and b.
   e. Is wordiness, because if the report is too long, it may not be read.

12. Suppose the instructions for applying an epoxy coating to a highway bridge say that the coating should be applied “as soon as possible” after mixing. The ambiguity here is first and foremost…
   a. A conceptual issue, because “as soon as possible” is not defined.
   b. A factual issue, because we do not know whether the workmen will understand the chemistry of the material well enough to know when the “window of opportunity” for applying the substance has passed.
   c. A factual issue, because we do not know what was in the mind of the writers of the instructions when they said this.
   d. An application issue, because we do not know how to apply the expression “as soon as possible” in this situation.
   e. A moral issue, since it affects the safety of the public.
13. In the case of the TV antenna tower that fell near Houston, the engineering firm that designed the tower refused to review the plan of the rigger to raise the last section of the tower, which contained the TV antenna baskets. A creative-middle-way response to the problem would have been to refuse to look at the rigger’s plans but tell them that they needed expert advice on the matter.

a. It is a creative-middle-way solution because it attempts to honor both the legitimate needs to protect the company from lawsuit, and to protect the lives of the workmen.

b. It is characteristic of creative-middle-way solutions in that it may not honor either of the competing obligations as fully as an ideal solution would. There might still be the possibility of a lawsuit, and the riggers might not take the engineers’ advice.

c. It is a typical creative-middle-way solution in that one of the competing obligations could be honored much more fully and completely than the other.

d. Both a and b.

e. None of the above.

14. Which of the following is an application issue?

a. A profession is characterized by exhibiting a type of activity that requires extensive intellectual training.

b. Engineering is a profession.

c. Most engineers are not registered.

d. Both a and b.

e. None of the above.

15. The “possum in the road” alluded to in lecture was a metaphor for:

a. An engineer’s responsibilities according to the reasonable care model.

b. An example of environmental pollution caused by lack of ethical responsibility

c. The risk of lawsuits to engineers who don’t fulfill their legal responsibilities.

d. Bumps in the “road of life”.

e. The guilty conscience of an engineer who has violated an ethical canon.

16. Denise is an engineer at a large construction firm. Her job is 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 rivet, an ACME representative visits her and gives her a voucher for an all-expenses paid trip to the ACME Technical Forum in Jamaica. The four-day trip will include 18 classroom hours and a day-long tour of the coastline. In determining whether the gift is a bribe, some bribe-making features of the negative paradigm (where the trip a bribe) that might be used in a line-drawing analysis would be:

a. The fact that the gift is given after the decision was made.

b. The fact that the person given the gift is the principal decision-maker.

c. The fact that other engineers would be influenced by the gift.

d. Both b and c.

e. None of the above.
17. Some critics of the professions argue that professionalism is just a way of disguising the fact that professionals are primarily concerned with using their professional status to increase their income.
   a. This criticism assumes the Business Model most accurately reflects the true nature of the professions. Which of the following statements is true?
   b. This criticism assumes the Social contract Model most accurately reflects the nature of the professions.
   c. This criticism reflects the views of state boards of registration, which do not have codes of ethics.
   d. This criticism is valid as applied to the codes of professional societies, which emphasize primarily the importance of not advertising and competing against fellow professionals.
   e. This criticism is based on the concept of supererogation.

18. The relationship between personal and professional ethics is best described as…
   a. Having no “overlap” or common moral requirements
   b. Having some “overlap”.
   c. Being more demanding or strict than personal ethics.
   d. Being less demanding or strict than personal ethics
   e. Both b and c.

19. Which of the following is true about the code of the National Society of Professional Engineers?
   a. It is the code of an organization to which all registered engineers may belong
   b. It requires its members strive to adequately examine the environmental impact of their actions and projects
   c. Both a and b
   d. Its provisions have the force of law.
   e. None of the above.

20. Which of the following is NOT a good reason for following engineering codes of ethics?
   a. The codes of the professional societies have the force of law, and one can be legally liable if she is an engineer and does not abide by the codes.
   b. The codes are an essential part of the Social Contract model of professionalism, in that they are a part of professional self-regulation.
   c. The codes give ethical engineers grounds for resisting unethical requirements of employers.
   d. Both a and b.
   e. None of the above.
21. The National Society of Professional Engineers (NSPE) “Code of Ethics for Engineers”
   a. Applies only to registered professional engineers who are also members of the NSPE.
   b. Has as its only enforcement power the fact that violators might be denied membership in the NSPE.
   c. Both a and b.
   d. Is enforced by law in Texas and other states that have boards of registration for engineers.
   e. Applies to all registered engineers in the US.

22. In a case discussed in the textbook, Amanda signs an agreement with Company A that obligates her not to reveal its trade secrets. Later she moves to Company B, where she finds a use for some ideas she conceived while at Company A. She never developed the ideas into an industrial process at Company A, and Company B is not in competition with Company A. What features would be in the negative paradigm (clearly wrong) in a line-drawing analysis of whether her action was permissible? The question at issue is whether she may use the ideas that she conceived while at Company A to benefit Company B.
   a. Divulging a trade secret.
   b. Heavy use of Company A’s lab equipment.
   c. Company A and Company B are not competitors.
   d. Both a and b.
   e. The profit resulting from the use of the idea is significant.

23. The “reasonable care” model of professional responsibility…
   a. Holds that it is reasonable to do no more than follow the rules of law in carrying out one’s professional responsibility.
   b. Holds that it is reasonable that one should not feel any responsibility for a task that is a part of another person’s job description.
   c. Holds that “stay out of trouble” is an expression that encapsulates how professionals should behave.
   d. Is an important canon of many engineering societies’ codes of ethics.
   e. None of the above.

24. A design engineer devotes time after regular working hours to determine if the features of a safety rope for those who wash windows on high rises can be improved, even though the current design satisfies legal requirements. This…
   a. Exemplifies the good works model, because it goes beyond what is required.
   b. Exemplifies the good works model, because it is motivated by the fear that the law will change and the present ropes will be illegal.
   c. Exemplifies the good works model, because it is an example of following the rule that one should do what should be done “as seen by a normal, prudent nonprofessional.”
   d. All of the above.
   e. None of the above.
25. A committee of engineers on which Alison Turner serves has determined that the cooling water in a nuclear power plant falls slightly below minimum requirement set by the technical specifications under which the plant is licensed. However, it is possible to request a waiver from the Nuclear Regulatory Commission to, in effect, violate the rules. All of Alison’s colleagues on the committee believe that a waiver should be sought, because the particular cooling system is a back-up system that some plants do not have at all. The vote is called for and Alison wonders how she should vote. Alison decides to go along with the vote. Her action best illustrates…
   a. The Reasonable Care approach to professional responsibility.
   b. The Good Works approach to professional responsibility.
   c. Groupthink.
   d. Egocentric thinking.
   e. None of the above

26. Some ethicists think professionals are particularly susceptible to what Michael Davis calls “microscopic vision.” Which of the following illustrates this concept?
   a. An engineer is so excited by the fact that she is working on a state-of-the-art project that she does not think about its detrimental environmental impact.
   b. An engineer is so interested in the fact that her project will advance her career that she decides to disregard the fact that, as she knows, the project will have a detrimental environmental impact.
   c. An engineer is willing to accept uncritically the statement of her boss that the project will have no detrimental environmental impact.
   d. An engineer is afraid to introduce into the group her view that the project should not be undertaken because of its detrimental environmental impact, because she is the only dissenter.
   e. All of the above.

27. It is the consensus of authorities in professional ethics that…
   a. Unlike personal ethics, in professional ethics lying is the only unacceptable way of misusing the truth.
   b. Deliberate deception is only one of the ways of misusing the truth in professional ethics.
   c. Dishonesty in research is wrong because it can undermine the trust necessary for the scientific enterprise to function.
   d. Both b and c.
   e. a and b and c.

28. Tom is a young engineering graduate student who designs automobile brakes for Ford. While working for Ford, he learns a lot about heat transfer and materials. After five years, Tom leaves Ford to take a job at General Motors. While at General Motors, Tom applies his knowledge of heat transfer and materials to design engines. In determining, by the method of casuistry, whether Tom is stealing Ford’s intellectual property, which of the following features would support the conclusion that Tom is not stealing Ford’s intellectual property?
   a. The information Tom took with him is generic information.
   b. The information was applied to a different project.
   c. The information Tom took with him was protected as a trade secret by Ford.
   d. Both a and b.
   e. None of the above.
29. Tom is a young engineering graduate who designs automobile brakes for Ford. While working for them, he learns a lot about heat transfer and materials. He also gains extensive knowledge of Ford’s innovative new brake design. After five years, Tom leaves Ford to take a job at General Motors. While at General Motors, Tom helps their engineers design a new brake that has some important features in common with Ford’s new brake design. In using the method of casuistry, which of the following features would support the conclusion that Tom is stealing Ford’s intellectual property?
   a. Much of the GM design is based on general heat transfer theory.
   b. The GM design is less efficient at dissipating heat than the Ford design.
   c. The GM design has the same cost as the Ford design.
   d. The GM design was developed very rapidly, with a large team of experts.
   e. None of the above.

30. People sometimes confuse a conflict of interest with conflicting interests. Which is the best example of a conflict of interest?
   a. Engineer Jane wants to work in the South to be close to home, but the best jobs are in California.
   b. Engineer Jane’s desire to have Firm B as a new customer leads her to give Firm B some information about the financial status of one of her other customers, Firm A.
   c. Engineer Jane’s perception that a business relationship between her employer and Firm A would be more profitable to her than a relationship with Firm B leads her to pursue the relationship with Firm A rather than with Firm B.
   d. Engineer Jane’s worry about her recent diagnosis of cancer distracts her so that she is unable to do an adequate job for her clients.
   e. All of the above.

31. What is the most important rule with respect to conflicts of interest?
   a. Conflicts of interest of all types should be disclosed.
   b. Actual conflicts of interest should always be avoided, but there is NO reason to try to overcome potential conflicts of interest.
   c. Apparent conflicts of interests must always be avoided.
   d. Actual conflicts of interest must be disclosed, but potential and apparent conflicts of interest need not be disclosed.
   e. Engineers must always recuse themselves when faced with conflicts of interest.

32. Engineer Joe Slipstick retains only those results of his investigation which fit his theory about the failure of a bridge. This is an example of...
   a. Cooking the data.
   b. Forging data.
   c. Plagiarizing the data.
   d. Both a and b.
   e. None of the above.
33. Denise is an engineer at a large construction firm. Her job is 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 rivet, an ACME representative visits her and gives her a voucher for an all-expenses paid trip to the ACME Technical Forum in Jamaica. The four-day trip will include 18 classroom hours and a day-long tour of the coastline. With respect to her conflict over whether to accept the offer of the trip, an example of a creative middle way solution would be:
   a. To invite several other engineers from her group to attend the Forum with her.
   b. To offer to have her employer pay for a portion of the trip.
   c. To use her accrued vacation time to attend the trip, instead of company time.
   d. To report the offer of the trip to the ASME Committee on Ethics.
   e. To accept the trip only after the purchase of the rivets is completed.

34. Test engineer Kermit Vandiver decided to sign the disputed A7-D brake certification report. Which of the following represent a reason that this was not a creative middle way solution?
   a. He later decided to resign, instead of riding the crisis out at Goodrich.
   b. He was fired by Goodrich as a result of his actions.
   c. His lawyer convinced him to talk to the FBI without informing his employer.
   d. Some important obligations were not met.
   e. There was only one other choice for him to make—to refuse to sign it.

35. A paradigm example was defined as an example that:
   a. Has an equal but opposite paradigm example for comparison and contrast.
   b. Is an example that essentially everyone will agree about.
   c. Is classified as either negative or positive.
   d. Is a simplified version of a more complicated example.
   e. Is an unambiguous example.

36. Guest speaker Malcolm Verdict related that:
   a. He found that he naturally excelled at technical writing.
   b. He usually has assistants who do most of his writing.
   c. He found writing was not very important for a junior engineer, but crucial for an engineering manager.
   d. Writing well did not come easy for him as a student.
   e. He was not required to take classes in writing while a university student.
37. A lesson to be taken from the loss of the Challenger is:
   a. Learn to differentiate between primary management decisions and primary engineering
decisions.
   b. Complex engineering processes (like the decision to launch) need continuous review.
   c. Engineers should learn to recognize when external pressures cause deviation from usual
   engineering practices.
   d. All of the above.
   e. Both b and c.

38. A follower of the Quaker religion (and a pacifist) asks his supervisor to transfer him from a
   fighter aircraft project to an airliner project. This is an example of:
   a. His obligation to protect the public health, safety, and welfare.
   b. Supererogation.
   c. Conflict between personal and professional obligations.
   d. How professional codes of ethics can help resolve issues.
   e. Both a and d.

39. The Ethics Officers Association “EOA” is:
   a. A voluntary association of industry executives concerned about ethics.
   b. A fictitious organization used in a case in the textbook.
   c. An association of the individuals charged with enforcement of the professional societies’
codes of ethics.
   d. A subcommittee of the Texas State Board of Engineering.
   e. A fraternal order whose members must profess to a strict code of ethics.

40. Convair Engineer Dan Applegate played what role in the 1974 crash of a DC-10 in Paris:
   a. He signed a fraudulent test report showing the cargo door latch was safe.
   b. He discovered parts missing from a door latch prototype that later failed in a test.
   c. He informed his managers about remaining flaws in the DC-10 cargo door latch.
   d. He averted disaster by reporting a problem with the door latch to the Dallas Morning
   News and Fort Worth Star Telegram.
   e. None of the above.
KEY:
1. d or e
2. a
3. d
4. b
5. a or d
6. a
7. b
8. c
9. c
10. d
11. d
12. a
13. d
14. b
15. a
16. d
17. a
18. b
19. a
20. a
21. c
22. d
23. e
24. a
25. c
26. a
27. d
28. d
29. e
30. b or c
31. a
32. a
33. b
34. d
35. b
36. d
37. d
38. c
39. a
40. c