

# Solutions for Homework7

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## **Abstract**

In this document we will show the solutions for problems represented in the given homework for this week.

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# 1 Theoretical Problems

## 1.1 Part 1.

### 1.1.1 Question

1. Your company has been granted a contract to develop the next generation of electronic cigarette, also known as a “nicotine delivery system,” and you have been assigned to the design team. Can you in good conscience contribute your expertise to this project? Write in details: issues, stakeholders, consequences action you might take
2. Choose **one** of the following industries then:
  - a. Apply the four-step ethical decision-making procedure to gain insight into the nature of the decision to be made  
(what the issue and who is effected by the alterntives, alternatives from other prespectives and their correlation, suggest an action)
  - b. Give at least one more ethical issue in the indutry you choose

Choose one:

- (a) Food processing industry (one issue Excess use of (fat/sugar/salt))
- (b) International manufacturing companies (one issue poor labor practice in other countries)
- (c) Various chemical industries (one issue Pesticide effect on ecosystem)

### 1.1.2 Solution

1. (a) Step 1: Identify and see if there is a problem, and if who is affected by it.
  - Issues:
    - Nicotine is very addictive and detrimental for your body.
    - This device / product might misdirect a lot of people into thinking that it will help them to stop smoking while in reality it could be worse.
    - Health care lawsuits / Protests against the product.
    - If this product becomes popular, there will be a huge decline in tobacco sales.
    - Refusing to make this product can get you fired.
    - Halting the production can cause huge money loss.
  - Stakeholders:
    - Nicotine addicts that are trying to recover
    - The User
    - Young people
    - The company
    - Tobacco farmers
    - You
- (b) Step 2: Analyze alternative courses of action from different perspectives.
  - Consequences:
    - Future lawsuits will come.
    - You might lose your job.
    - A lot of people might develop health problems
  - Intent:
    - People who struggle with nicotine addiction should **NOT** use this product.
    - People who use this device risk getting addicted to nicotine.
    - People might overcome their tobacco addiction.
    - The company will make a lot of \$\$\$
  - Character
    - Person of good character would **NOT** condone the use of this device.
    - Person of good character **COULD** use this device without damaging their reputation.
    - My spiritual leader would **NOT** condone the use of this device.

(c) Step 3: Correlate perspectives.

- While it is true that this device can help people resolve their smoking addiction, it will still affect the consumers health because nicotine is poisonous. This device doesn't benefit people who are non smokers, nor does it do good for the company because of the legal lawsuits it would face from all the health concerns.

(d) Step 4: My decision

- I do **NOT** condone the use of this device for the soul reason that it has more negative over positives, and all the positives it has all come with their side-effects.

## 2. FOOD PROCESSING INDUSTRY (ONE ISSUE EXCESS USE OF (FAT/SUGAR/SALT))

(a) Step 1: Identify and see if there is a problem, and who is affected by it.

- Issues:
  - Health problems
  - Possible lawsuits
- Stakeholders:
  - Young children
  - Industry food consumers
  - Students (Because no \$\$\$, can't get good food :( spent it all on my car)
  - Company

(b) Step 2: Analyze alternative courses of action from different perspectives:

- Consequences:
  - Diabetes
  - Heart problems
  - Sugar Rush
  - Kidney problems
- Intent:
  - Young kids should not be given food with too much sugar, because it has a high probability of giving them a sugar rush.
  - People should not consume food with a lot of fat, because it increases the chance of a heart attack.
- Character:
  - Person of good character would **NOT** condone the selling of food products with high amount of salt,sugar, or fat.
  - Person of good character would **NOT** sell these products.

(c) Step 3: Correlate perspectives.

- Products that have an excess amount of fat/sugar/salt are extremely cheap, and very damaging to a person's health.

(d) Step 4: My decision

- I do **NOT** suggest consumption nor selling of products with excess amount of fat/sugar/salt do to their high levels of risk to health.

## **1.2 Part 2.**

### **1.2.1 Question**

1. For a 14 minutes oral presentation, how would you allocate the time for introduction, body and conclusion
2. List some recommendations related to oral presentations
3. List some body language related aspects of oral presentation

### **1.2.2 Solution**

1. 2 minutes on introduction, 10 minutes for the body, and 2 minutes for the conclusion.
2.
  - Be excited.
  - Speak with confidence.
  - Make eye contact with the audience.
  - Avoid reading from the screen.
  - Blank the screen when a slide is unnecessary.
3.
  - Make sure you look at everyone
  - Do not be tense
  - Be adaptable
  - Smile
  - Interact with the audience
  - Speak clearly

## **1.3 Part 3.**

### **1.3.1 Question**

Fix the following texts to look more professional

- The manager at the company discussed the project of the construction with the engineer of the contract.
- Mechanical engineers designed vehicles, develop heating system, and drawing machine parts
- The following skills are used by engineers analysis creativity and communication

### **1.3.2 Solution**

- The manager of the company discussed the construction project with the engineer in charge.
- Mechanical engineers work on designing the vehicles, developing the heating systems, and sketching needed machine parts.
- Analysis, creativity, and communication skills are used by engineers.

## 1.4 Part 4.

### 1.4.1 Question

1. What are the steps in designing a solution to a problem?
2. What are the constraints faced in designing solution for engineering problems?

### 1.4.2 Solution

The steps in designing a solution to a problem are:

1. Define the problem;
2. Generate concepts;
3. Develop a solution;
4. Construct and test the prototype;
5. Evaluate the solution(if not valid go to step 3);
6. Present the solution;

## 1.5 Part 5.

### 1.5.1 Question

An engineer works at an automobile manufacturing facility. His tests show that there is 1% probability that the brake system might fail. He informs his manager of his findings. However, his manager stresses the importance of shipping the new automobiles on time because any more delays in production will cause massive financial losses. He asks the engineer to ignore the test results and concentrate on meeting the delivery deadlines.

### 1.5.2 Solution

While no question here was asked, we are guessing this has to do with the choice that the engineer should make. Here it is a classical ethical question if the engineer should push this product. If the engineer does not push out the product in time he will cause a huge financial loss to the company which will most likely lead him to getting fired, on the other side if he does push this product he will be putting a lot of peoples lives at risk. So the engineer should **NOT** push this product out.

## 2 Octave Problems