ENG1100: Final Exam Study Guide

Drawing:
Review Lab Manual Exercises
Isometric Sketches
Object Transformations: Translation, Rotation, Dilation, Reflection
Orthographic Projections
Normal, Inclined, and Single Curved Surfaces
6. Is rotated to

As

Is rotated to

A B C D E

7. Is rotated to

As

Is rotated to

A B C D E
If you have a choice when drawing orthographic projections of an object, which view is the best choice for the front view?
**Unigraphics:**
Review Exam 1 material
Create a simple part with at least one protrusion/extrusion, add dimensional and geometric constraints, and create an engineering drawing of the part (top, front, right side, and isometric views)
Can you easily change the units for a model once you have already started the part?
Why is unigraphics a powerful solid modeling package?
How do you create a part using the sketch based modeling approach?
What can be stored in a unigraphics file?
What types of constraints can be used to control 2-D sketches?
Drafting application is fully associated with the model.

**Design Project:**
Review design project deliverables (spring analysis and math model)
Review Exam 2 material
Spring analysis – what did you do, what did you find?
Math Model Calculations: Be able to calculate (and derive if you don’t want to memorize equations)
- Length of String (Ls)
- Distance Traveled (Dt)
- Force perpendicular to the end of the mousetrap arm (Ftrap)
- Force perpendicular to the end of the extended arm (Farm)
- Tension in the string (Ts)
- Motive Force (Fmot)
- Net Motive Force (Fnet)

**VBA:**
Review Exam 2 material
Complete a flowchart
Use a flowchart and/or VBA code to determine values for various variables
Flow Control
- Conditional Statements
- For Loops
Functions:
- Function definition line
- How to call a function from a spreadsheet?
- What is returned to the spreadsheet from the function?
Macros:
- Sub definition line
- How do you get values for variables into the sub from the spreadsheet?
- How do you print values to the spreadsheet from the sub?

**Ethics:**
Review course slides
What is the difference between morals and ethics?
What are the 6 fundamental canons in NSPE’s Code of Ethics for Engineers?
What are the steps you can use to help you analyze an ethical dilemma?
What are the simple tests you can use to evaluate alternative courses of action?
Given a situation – choose the best course of action

Your meeting with a sales representative is running into the lunch hour. She invites you to go out for lunch. Knowing that social interactions, such as eating together, often facilitate the type of close and successful interactions required by both companies, you agree to go. The sales
representative takes you to an expensive restaurant and insists on paying for your lunch. Choose the most ethical option from below:

a. Agree to allow the sales rep pay for your lunch.

b. Insist that you pay for your own lunch (to be reimbursed by your company).

c. Agree to allow the sales rep pay for lunch and offer to leave the tip.

d. Excuse yourself for a moment and call your manager to get their opinion on the acceptability of having your lunch paid by the sales rep.

You are an engineer that is working on a mass transit project that incorporates an automated train system that has no direct human control of the trains. During the course of your work on the project, you become concerned about the safety of the automated control system and are not satisfied with the test procedures being used by the contractor for the train controls. You have been unable to get a satisfactory response from your immediate supervisors. Do you:

a. Remove yourself from the project, alerting no one else of your concerns.

b. Go to the media with a report of your concerns.

c. Write a letter to upper management regarding your concerns and your actions to correct the problem.

d. Continue your attempts to get your immediate supervisors to act on your concerns even though you feel that this will not result in a satisfactory response.