ENGR 1182  |  Midterm Exam 2: Study Guide and Practice Problems

Disclaimer

Problems seen in this study guide may resemble problems relating mainly to the pertinent homework assignments. Reading this study guide and solving the practice problems is not a sufficient level of studying for this exam. Students should also review the relevant reading material and PowerPoint slides as questions will be asked from those places as well. Please remember that the number of “show your work” practice problems may exceed the number of “show your work” exam problems.

Study Guide:  Exam 2, ENG 1182 – AU15

Computer storage devices will not be allowed into the exam room. Use of the Internet or Carmen is not permitted. The exam will be closed book.

The final exam will consist of five sections:

- SOLIDWORKS object creation -EXTRUDE (25%)
- SOLIDWORKS object creation -REVOLVE (20%)
- SOLIDWORKS assembly (25%)
- SOLIDWORKS drawing layout (15%)
- Multiple Choice-Dimensioning & Constraints problem (15%)

Skills:

SOLIDWORKS:

- Create an object in SOLIDWORKS from a dimensioned isometric drawing.
  - Be able to plan creation of the object as a series of features.
  - Be able to use dimensioning and constraints to completely define a sketch for each feature and then extrude or revolve it.
➢ Be able to fully constrain all components in an assembly drawing.*

- Be able to make a set of orthographic projections in their standard locations on a 2-D drawing sheet from your created object and add an isometric in the corner.
- Be able to make a set of orthographic projections using the proper Display Style (hidden lines shown or shaded) and to proper apply Center Marks and Centerlines.
- Be able to fill in all the OSU Title block data.
- Be able to select the correct orientation so that the most characteristic view becomes the Front View.

- Be able to insert text blocks and change the font size to make it easily readable
- Be able to print in Landscape mode using Print Preview.

Visualization:

- Know the conventional layout of a set of orthographic views.

Dimensioning & Constraints

- Know and be able to apply the rules of good dimensioning.
- Be able to apply geometric constraints to a part.

Under Defined sketches (except for the one with your name on it) will not receive full credit. Fully Defined sketches requires both geometric and dimensional constraints. Using ONLY the drawing tool to size your object will NOT produce a Fully Defined sketch.
Practice Problems

Directions: Create Solidworks part files of each part shown. Apply AISI 1020 Steel, take a screenshot of the isometric of each part and give the weight of each part (in lbs).

Problem 1
Problem 2

Problem 3
Problem 4
Directions: Finish the SolidWorks assembly files of each assembly shown. (Seed files and remaining parts are given on the website) Take a screenshot of the isometric of each assembly and give the weight of each part (in lbs). (Assemble the circuit so that each chip is ~0.379 inches from each edge)

Problem 5
Problem 6
1. In the sketch shown above, select the answer from the options that describes the constraint that will constrain lines 1 and 9 to produce the final sketch on the right.
   a. Equal
   b. Perpendicular
   c. Collinear
   d. None of the above

2. In the sketch shown above, select the answer from the options that describes the constraint that will constrain lines 2 and 3 to produce the final sketch on the right.
   a. Coincident
   b. Perpendicular
   c. Collinear
   d. None of the above

3. In the sketch shown above, select the answer from the options that describes the constraint that will constrain lines 3 and 15 to produce the final sketch on the right.
   a. Parallel
   b. Perpendicular
   c. Concentric
   d. None of the above

4. In the sketch shown above, select the answer from the options that describes the constraint that will constrain lines 4 and 5 to produce the final sketch on the right.
   a. Parallel
   b. Perpendicular
   c. Collinear
   d. Coincident
5. In the sketch shown above, select the answer from the options that describes the constraint that will constrain lines 5 and 3 to produce the final sketch on the right.
   a. Tangent
   b. Perpendicular
   c. Collinear
   d. None of the above

6. In the sketch shown above, select the answer from the options that describes the constraint that will constrain lines 6 and 12 to produce the final sketch on the right.
   a. Tangent
   b. Perpendicular
   c. Collinear
   d. Parallel

7. In the sketch shown above, select the answer from the options that describes the constraint that will constrain lines 7 and 11 to produce the final sketch on the right.
   a. Equal
   b. Perpendicular
   c. Collinear
   d. Concentric

8. In the sketch shown above, select the answer from the options that describes the constraint that will constrain lines 8 and 9 to produce the final sketch on the right.
   a. Equal
   b. Perpendicular
   c. Collinear
   d. None of the above

9. In the sketch shown above, select the answer from the options that describes the constraint that will constrain lines 9 and 6 to produce the final sketch on the right.
   a. Equal
   b. Perpendicular
   c. Collinear
   d. None of the above

10. In the sketch shown above, select the answer from the options that describes the constraint that will constrain lines 10 and 8 to produce the final sketch on the right.
    a. Concentric
    b. Parallel
    c. Collinear
    d. None of the above
11. In the sketch shown above, select the answer from the options that describes the constraint that will constrain lines 11 and 10 to produce the final sketch on the right.
   a. Equal
   b. Parallel
   c. Collinear
   d. Coincident

12. In the sketch shown above, select the answer from the options that describes the constraint that will constrain lines 12 and 13 to produce the final sketch on the right.
   a. Coincident
   b. Parallel
   c. Collinear
   d. Concentric

13. In the sketch shown above, select the answer from the options that describes the constraint that will constrain lines 13 and 15 to produce the final sketch on the right.
   a. Equal
   b. Parallel
   c. Collinear
   d. None of the above

14. In the sketch shown above, select the answer from the options that describes the constraint that will constrain lines 14 and 4 to produce the final sketch on the right.
   a. Perpendicular
   b. Parallel
   c. Collinear
   d. None of the above

15. In the sketch shown above, select the answer from the options that describes the constraint that will constrain lines 15 and 11 to produce the final sketch on the right.
   a. Equal
   b. Parallel
   c. Collinear
   d. None of the above

16. In the sketch shown above, select the answer from the options that describes the constraint that will constrain lines 16 and 1 to produce the final sketch on the right.
   a. Equal
   b. Parallel
   c. Collinear
   d. Perpendicular