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

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

Study Guide

The exam will have three problems (75 total points):

Problem 1  Use SOLIDWORKS to create a 3D object (30 points)
Problem 2 Part A  Use SOLIDWORKS to build an assembly (11 points)
Problem 2 Part B  Use the assembly from Part A to create a drawing with orthographic and isometric views and annotations (14 points)
Problem 3  Multiple Choice – Dimensioning and Constraints (20 points)

SOLIDWORKS Skills:

• 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 create a sketch for each feature and then extrude or revolve it.
• Be able to insert and mate all components in an assembly.
• Be able to make a set of orthographic projections in their standard locations on a 2-D drawing sheet 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 OSU Title block information.
• 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.
• Be able to make a PDF of an object or drawing.
• Know the conventional layout of a set of orthographic views.
• Know and be able to apply the rules of good dimensioning.
• Be able to apply geometric constraints to a part.
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
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