



CHAPTER 1 INTRODUCTION TO ENGINEERING DRAWING AND DESIGN TEST

INSTRUCTIONS

Answer the questions with short, complete statements or drawings as needed.

QUESTIONS

1. Define rapid prototyping (RP).
2. Define engineering drawing.
3. Define drafting.
4. Define computer-aided design and drafting (CADD).
5. Define software.
6. What does CAD stand for? Give another meaning that is often associated with CAD.
7. Describe how manufacturers produced parts from hand sketches or hand drawings on blackboards in the 1800s and how these sketches and drawings were used. Also identify a notable manufacturer who used this method.
8. Describe interchangeability.
9. About the same time as interchangeability became important and engineering drawings were evolving, why did it become important to preserve and duplicate original drawings?
10. Who is a drafter?
11. Describe the nature of work performed by drafters.
12. What kind of drafters create CADD models and drawings of airplanes, missiles, spacecraft, and components and related equipment such as launch mechanisms?
13. What kind of drafters prepare CADD models and drawings of the architectural and structural features of a building?
14. What type of drafting develops working layouts and master drawings of automotive vehicle components, assemblies, and systems?
15. Give another name for a cartographic drafter and describe the function.
16. Identify the types of drawings created by casting, forging, and mold drafters.
17. What kind of drafters prepare CADD models and drawings used in construction or civil engineering projects such as highways, bridges, pipelines, flood-control projects, and water and sewage systems?
18. What is another name for a commercial drafter?
19. Describe the work done by electrical drafters.
20. Describe the type of work done by electronic drafters.
21. What kind of drafter does the following? Draws maps, diagrams, profiles, cross sections, directional surveys, and subsurface formations; represents geological or geophysical stratigraphy and the locations of gas and oil deposits; correlates and interprets data obtained from topographical surveys, well logs, and geophysical prospecting reports; and uses special symbols to denote geological and geophysical formations or oil field installations.
22. Describe the type of work done by heating, ventilating, and air-conditioning (HVAC) drafters.
23. What is another name for an industrial process pipe drafter? Describe the work this person does.
24. What type of drafters do the following? Prepare CADD models and drawings from rough sketches or other data provided by landscape architects and prepare separate detailed site plans, grading and drainage plans, lighting plans, paving plans, irrigation plans, planting plans, and drawings and details of garden structures.
25. Briefly describe the distinction between mechanical drafting for manufacturing and construction industries.
26. Describe the types of drawing created by mechanical drafters for the manufacturing industry.
27. What type of drafters develop CADD models and drawings of structural and mechanical features of ships, docks, and other marine structures and equipment?
28. Describe the responsibilities of patent drafters.

29. Provide an example of how design ideas might be communicated by sketching on a napkin during a coffee break.
30. What type of drafters prepare clear and accurate drawings of varied sorts of mechanical devices for use by patent lawyers in obtaining patent rights?
31. What type of drafters do the following? Create CADD models and drawings for structures employing structural reinforcing steel, concrete, masonry, wood, and other structural materials, and produce plans and details of foundations, building frame, floor and roof framing, and other structural elements.
32. Describe a detail drafter or detailer as related to the occupation identified in question 31.
33. Who are the people who do the following? Lay out and draw illustrations for reproduction in reference works, brochures, and technical manuals dealing with assembly, installation, operation, maintenance, and repair of machines, tools, and equipment.
34. Who are the people who do the following tasks? Create schematic, perspective, axonometric, orthographic, or oblique-angle views to depict function, relationship, and assembly sequence of parts and assemblies, such as gears, engines, and instruments, and also create rendered drawings, 3-D models, and cartoons and caricatures to illustrate operation, maintenance, and safety manuals and posters.
35. Describe the tasks found in tool and die design drafting. Tool and die design drafting is a specialization of mechanical drafting.
36. Why is a quality resume important when seeking employment?
37. What should your portfolio contain?
38. How should you prepare for an interview?
39. Describe how the Internet is a valuable place to seek employment.
40. Identify a caution to consider when seeking employment over the Internet.
41. What professional industry organization is dedicated to the advancement of design and drafting and the graphics professions across all industries?
42. Briefly define standards.
43. How does the American Society of Mechanical Engineers (ASME) define the term standard?
44. What is the ISO?
45. What organization publishes drafting standards related to welding technology and related joining disciplines?
46. Define ethics.
47. What is a code of ethics?
48. Describe software piracy and explain the appropriate use of software.

49. What is a copyright?
50. What is a patent?

CHAPTER 1 INTRODUCTION TO ENGINEERING DRAWING AND DESIGN PROBLEMS

INSTRUCTIONS

Select one or more of the following problem topic areas as determined by your instructor or course guidelines and write a 300- to 500-word written and oral report on the selected topic or topics. Prepare each report using a computer. Use double spacing, proper grammar and spelling, and illustrative examples where appropriate. Use, but do not copy, the information found in this chapter and additional research information.

Problems 1.1 Through 1.20

PROBLEM 1.1 Importance of engineering drawing and design for manufacturing and construction.

PROBLEM 1.2 History of drafting.

PROBLEM 1.3 Computers in design and drafting.

PROBLEM 1.4 One or more drafting fields of your choice.

PROBLEM 1.5 Requirements for becoming a drafter.

PROBLEM 1.6 Searching for a drafting position.

PROBLEM 1.7 Employment opportunities on the Internet.

PROBLEM 1.8 American Design Drafting Association and American Digital Design Association (ADDA).

PROBLEM 1.9 ASME drafting standards.

PROBLEM 1.10 ISO drafting standards.

PROBLEM 1.11 United States National CAD Standard.

PROBLEM 1.12 Workplace ethics.

PROBLEM 1.13 Intellectual property rights.

PROBLEM 1.14 Software piracy.

PROBLEM 1.15 Copyrights.

PROBLEM 1.16 Patents.

PROBLEM 1.17 Trademarks.

PROBLEM 1.18 It is never necessary to draw anything more than once with CADD.

PROBLEM 1.19 Professional perspective.

PROBLEM 1.20 Your own selected topic that relates to the content of this chapter.