

Online Extended Print Reading Tests  
Solutions Manual

Print Reading for Engineering & Manufacturing Technology  
Third Edition

David A. Madsen  
David P. Madsen

# Chapter 1

## Print Reading Test Solutions

### Part 1

#### Multiple Choice

Respond to the following by selecting *a*, *b*, *c*, or *d* to best answer the question or complete the statement. Make the correct answer bold when answering electronically. Make a print of the test and circle the correct answer when answering manually.

1. This is an old term that is generally used in the manufacturing industry when referring to print.  
**a. blueprint**  
b. diazo  
c. photocopy  
d. microfilm
2. Blue-line prints are also known as:  
a. blueprint  
**b. diazo**  
c. photocopy  
d. microfilm
3. This is a full-size print process where there is no need for coated copy materials or the possible hazards of ammonia.  
a. blueprint  
b. diazo  
**c. photocopy**  
d. microfilm
4. This print process copies prints or other documents from any type of original and onto most types of copy material.  
a. blueprint  
b. diazo  
**c. photocopy**  
d. microfilm
5. Some machines that use this print process allow the user to reduce or enlarge prints to suit specific needs.  
a. blueprint  
b. diazo  
**c. photocopy**  
d. microfilm

6. This process produces a reduced reproduction of a print or other document for ease of storage and for convenience in sending from one place to another.
- a. blueprint
  - b. diazo
  - c. photocopy
  - d. microfilm**
7. The microfilm used in mechanical engineering is generally prepared as one frame or print attached to this type of card.
- a. photocopy
  - b. aperture**
  - c. roll
  - d. microfilm
8. The letters CADD refer to:
- a. computer-aided print and design
  - b. computer-assisted design and print
  - c. computer-aided design and drafting**
  - d. common applications for print and distribution
9. A standard A-size print is:
- a. 22" X 34"
  - b. 17" X 22"
  - c. 11" X 17"
  - d. 8.5" X 11"**
10. A standard B-size print is:
- a. 22" X 34"
  - b. 17" X 22"
  - c. 11" X 17"**
  - d. 8.5" X 11"
11. A standard C-size print is:
- a. 22" X 34"
  - b. 17" X 22"**
  - c. 11" X 17"
  - d. 8.5" X 11"
12. A standard D-size print is:
- a. 22" X 34"**
  - b. 17" X 22"
  - c. 11" X 17"
  - d. 8.5" X 11"

13. A given amount of acceptable variation in a size or location dimension is:
- a. units
  - b. basic
  - c. tolerance**
  - d. limits
14. Manufacturing engineering prints are generally drawn in these units.
- a. feet and inches
  - b. inches or millimeters**
  - c. scientific units
  - d. engineering units
15. This term means that all of the features or dimensions on the print have the relationship or specifications given in the title block, unless a specific note or dimensional tolerance is provided in a particular location in the print.
- a. bilateral tolerance
  - b. unspecified tolerance
  - c. specified tolerance
  - d. unless otherwise specified**
16. This term refers to any dimension on the print that does not have a tolerance specified, and the tolerance is given in the title block or in a general note.
- a. bilateral tolerance
  - b. unspecified tolerance**
  - c. specified tolerance
  - d. unless otherwise specified
17. This term designates a dimension on a print that has its own tolerance that is different from the standard tolerance given in the dimensioning and tolerancing block.
- a. bilateral tolerance
  - b. unspecified tolerance
  - c. specified tolerance**
  - d. unless otherwise specified
18. A system of numbers along the top and bottom margins and letters along the left and right margins that allow a print to be read like a map is called:
- a. zoning**
  - b. referencing
  - c. mapping
  - d. margin reference
19. The area inside the border lines and outside the title block of a print is referred to as:
- a. print area
  - b. zone
  - c. revision area
  - d. field**

20. Prints should be properly folded for:
- a. easy identification in the file cabinet
  - b. placing in a file cabinet
  - c. mailing
  - d. all of the above**
21. Prints that are created using CADD can be reproduced on:
- a. a printer
  - b. a plotter
  - c. both a and b**
  - d. neither a nor b
22. The quality of a CADD print is greatly influenced by the reproduction method and the type of output device.
- a. true**
  - b. false
23. This is a CADD output device that uses liquid ink pens to plot a print.
- a. laser printer
  - b. electrostatic plotter
  - c. pen plotter**
  - d. impact printer
24. This high-speed output device achieves results of excellent quality by attaching permanent ink to electrically charged dots.
- a. laser printer
  - b. electrostatic plotter**
  - c. pen plotter
  - d. dot-matrix printer
25. This output device sprays droplets of ink onto the paper to form dot-matrix images.
- a. laser printer
  - b. electrostatic plotter
  - c. inkjet printer
  - d. dot-matrix printer**
26. A physical print produced by a printer or plotter is a:
- a. print
  - b. hard copy**
  - c. soft copy
  - d. document
27. What is CAM?
- a. computer-automated manufacturing**
  - b. computer-aided machining
  - c. computer-aided manufacturing
  - d. computer-analyzing materials

28. Which ASME document is titled “Decimal Inch Print Sheet Size and Format”?
- a. **ASME Y14.1**
  - b. ASME Y14.1M
  - c. ASME Y14.2
  - d. ASME Y14.5
29. This is the format margin of a sheet, usually between the edges of the sheet to borderlines.
- a. boundary
  - b. margin line
  - c. field line
  - d. **border**
30. This block provides a variety of information about a print, such as the title of the print, sheet size, and predominate scale.
- a. angle of projection block
  - b. dimensioning and tolerancing block
  - c. revision history block
  - d. **title block**
31. A five-number code assigned by the United States Defense Logistic Service Center (DLSC) to all Department of Defense contractors.
- a. DLSC code
  - b. DOD code
  - c. **CAGE code**
  - d. USDLSC code
32. This block specifies how to interpret a print according to the method of view projection.
- a. **angle of projection block**
  - b. dimensioning and tolerancing block
  - c. revision history block
  - d. title block
33. This block is used to specify the general dimensioning and tolerancing specifications found on the print.
- a. angle of projection block
  - b. **dimensioning and tolerancing block**
  - c. revision history block
  - d. title block
34. What is ISO?
- a. isometric
  - b. International Standardization Organization
  - c. **International Organization for Standardization**
  - d. International Standards Organization
35. This block is used to record changes to the print and is typically located in the upper right corner of sheet borderlines.

- a. angle of projection block
  - b. dimensioning and tolerancing block
  - c. revision history block**
  - d. title block
36. This block appears on the first sheet of multiple sheet prints and records the revision status of each print.
- a. revision status of sheets block**
  - b. dimensioning and tolerancing block
  - c. revision history block
  - d. title block
37. This block is optional and is used to identify the print number and sheet number and optional revision when reading the margin information on the print.
- a. revision status of sheets block
  - b. revision history block
  - c. margin block
  - d. margin print number block**
38. These are placed in the margin of prints for use in microfilm alignment.
- a. microfilm alignment, or centering, arrows**
  - b. microfilm target arrows
  - c. microfilm placement arrows
  - d. microfilm guide arrows
39. This compartment is used in a revision history block to identify the location of the change on the print.
- a. description
  - b. location
  - c. placement
  - d. zone**
40. The second sheet in a two-sheet set of prints is identified as:
- a. 2:2
  - b. 2/2
  - c. 2 OF 2
  - d. either b or c**

## Part 2

### Reading Sheet Blocks

Given the following sheet blocks, with characteristics labeled A through Q, name and completely identify each characteristic in the space provided.

Diagram of a drawing sheet template with labeled blocks:

- A**: Title block
- B**: Angle of projection block
- C**: Dimensioning and tolerancing block
- D**: Company or Design Activity
- E**: Title
- F**: Sheet Size
- G**: CAGE Code
- H**: Drawing Number
- I**: Revision
- J**: Scale
- K**: Weight
- L**: Sheet

Additional blocks and content:

- M**: Approvals table (DRAFTER, CHECKER, ENGINEER)
- N**: Date
- O**: Title
- P**: Dimensioning and tolerancing text (UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES (IN) TOLERANCES: 1 PLACE ±.1 2 PLACE ±.01 3 PLACE ±.005 4 PLACE ±.0050 ANGLES 30° FINISH 62 u IN)
- Q**: Third angle projection symbol

Courtesy Delmar Cengage Learning

- A. **Title block.**
- B. **Angle of projection block.**
- C. **Dimensioning and tolerancing block.**
- D. **Company or Design Activity. Normally displays the name, address, and contact information of the company, or can provide original design activity content.**
- E. **Title. Displays the title of the drawing, which is typically the product assembly name or the specific part or subassembly name.**
- F. **Sheet Size. Identifies the sheet size designation such as A, B, A4, or A3.**
- G. **CAGE Code. The CAGE code is a five-number code assigned by the United States Defense Logistic Service Center (DLSC) to all Department of Defense contractors. CAGE stands for Commercial And Government Entity.**
- H. **Drawing Number. Some companies specify the part or related number as the drawing number.**
- I. **Revision. Specifies the current revision of the part or drawing.**
- J. **Scale. Specifies the principal drawing scale, such as FULL or 1:1, HALF or 1:2, DBL or 2:1, and QTR or 1:4. Enter NONE when there is no scale.**
- K. **Weight. Indicates the actual or estimated weight of the part or assembly.**
- L. **Sheet. Identifies the sheet relative to a group or set of sheets.**



- M. Approvals 1. This area typically allows for approval names or signatures and dates by people directly involved with preparing and approving the drawing, such as the drafter, checker, and engineer.
- N. Approval 2. Allows for approval by an individual, design activity, or organization not directly related with preparing or approving the drawing, such as a subcontractor hired to manufacture the product.
- O. Approval 3. Allows for approval by an individual, design activity, or organization not specified in the other approval blocks.
- P. The upper portion of the dimensioning and tolerancing block provides a note indicating that all dimensions are in millimeters (mm) or inches (in.), unless otherwise specified, such as UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES (IN.).
- Q. Tolerancing applications depend on company practice and manufacturing applications.

### Part 3

#### Reading a Revision History Block

Given the following revision history block, with characteristics labeled 1 through 5, name and completely identify each characteristic in the space provided.

REVISION HISTORY				
ZONE	REV	DESCRIPTION	DATE	APPROVED
1	2	3	4	5

1. **Zone. This compartment is only used if the drawing includes zoning and specifies the location of the revision.**
2. **Revision. The revision letter or number is found in this location, such as A, B, C, or D.**
3. **Description. Gives a short description of the change.**
4. **Date. Provides the day, month, and year on which the engineering change is ready for release to production.**
5. **Approval. The initials of the person approving the change and the optional date.**

## Part 4

### Reading a Company Title Block

Given the title block and revision block shown, describe the elements located at each number in the space provided.

<p>THIS PRINT AND ITS CONTENTS ARE THE PROPERTY OF INCOM INTERNATIONAL INC. AND THEY ARE LOANED TO YOU SUBJECT TO RETURN TO INCOM INTERNATIONAL INC.'S DEMAND, AND ARE TO BE MAINTAINED IN CONFIDENCE BY YOU AND ARE NOT TO BE USED IN ANY WAY DIRECTLY OR INDIRECTLY DETRIMENTAL TO INCOM INTERNATIONAL INC.'S INTERESTS.</p> <p>UNLESS OTHERWISE SPECIFIED —          ANGLES ± 1/8" 2 PLACE DEC. ± .01;          3 PLACE DEC. ± .019 COMMERCIAL          TOLERANCES SHALL APPLY TO          SIZES OF BAR, ROD, WIRE, SHEET,          TUBE, ETC. PLATED PARTS MUST          FIT GAUGES AND MEET SPECIFIED          TOLERANCES AFTER PLATING.</p>		DRAWN BY <b>1</b> DATE		<p><b>FINCOR</b>          INCOM INTERNATIONAL INC.          3750 East Market Street          York, Pennsylvania 17402          (717) 757-4641</p>	
		CHECKED BY <b>2</b> DATE			
		APPROVED BY <b>3</b> DATE			
		MODEL NO. <b>4</b>			
MATERIAL <b>6</b>		SCALE <b>5</b>		PART NAME: <b>8</b>	
		SHT. <b>9</b> OF		Dwg. SIZE <b>10</b>	
				PART NUMBER: <b>11</b>	
				REV. <b>12</b>	

  

<b>13</b>	<b>14</b>	<b>15</b>	<b>16</b>
REV.	DESCRIPTION	REVISED BY	DATE

**REVISIONS**

A

B

Courtesy FINCOR Electronics Division

1. **Drawn by; this is where the drafter's initials are placed, and the date of the drawing.**
2. **Checked by; this is the person who checks the drawing, and the date checked.**
3. **Approved by; this is the initials of the person giving final approval of the drawing.**
4. **Model number of the product or part shown on the drawing.**
5. **Scale gives the scale of the drawing.**
6. **Material indicates the type of material used to make the part.**
7. **Information about unspecified dimensions.**
8. **Part name identifies the name of the part represented on this drawing.**
9. **Sheet Number; for example, if there is one sheet then this would be Sht. 1 of 1.**
10. **This is the sheet size; this drawing is a c size.**
11. **Drawing number of the part represented in this drawing.**
12. **The current revision letter or number is placed here.**
13. **The revision letter or number is placed in this column starting with A or 1.**

14. **This is a description of the change that was made by this revision.**
15. **Initials of the person making the revision.**
16. **Date of the revision.**

## Chapter 2

### Print Reading Test - Solutions

#### Multiple Choice

Respond to the following by selecting *a*, *b*, *c*, or *d* to best answer the question or complete the statement. Make the correct answer bold when answering electronically. Make a print of the test and circle the correct answer when answering manually.

1. Sketching is also known as:
  - a. diazo
  - b. freehand print**
  - c. art
  - d. production print
2. Which of the following is an advantage of sketching?
  - a. convenient
  - b. fast visual communication
  - c. good for communicating technical concepts
  - d. all of the above**
3. Use this pencil for sketching.
  - a. 2**
  - b. HB
  - c. 4H
  - d. none of the above
4. The best sketches are made when:
  - a. the paper is taped to the table
  - b. the paper is placed vertically
  - c. the paper is free to move**
  - d. the paper has a slick surface
5. The distance from the center to the circumference of a circle is called:
  - a. radius**
  - b. diameter
  - c. circumference
  - d. tangent

6. The distance across a circle through the center is called:
- a. radius
  - b. diameter**
  - c. circumference
  - d. tangent
7. The distance all the way around the outside of a circle is known as:
- a. radius
  - b. diameter
  - c. circumference**
  - d. tangent
8. When sketching, all of the lines that make up the object are related to each other by size and direction. The first line of the object that you sketch sets the proportion for the rest of the sketch. This line is called the:
- a. reference line
  - b. sketch line
  - c. measurement line**
  - d. proportion line
9. The method used to sketch a circle using a strip of paper with the radius marked on the edge is called:
- a. compass method
  - b. trammel method**
  - c. hand-compass method
  - d. hand-trammel method
10. A method used to sketch circles that requires only your hand, a pencil, and a piece of paper on which to sketch is called:
- a. compass method
  - b. trammel method
  - c. hand-compass method**
  - d. hand-trammel method

11. When you sketch two-dimensional views of an object that are established by a line of sight that is perpendicular to the surface of the object, you are sketching the:
- a. isometric view
  - b. pictorial view
  - c. view alignment
  - d. **multiview**
12. When these types of sketches provide a three-dimensional representation of an object where the surface features or the axes of the objects are drawn at equal angles ( $30^\circ$  from horizontal), you are sketching the:
- a. **isometric view**
  - b. pictorial view
  - c. view alignment
  - d. multiview