

Chapter 1, Overview of press technology

1: What is the Principle of Lithography?

2: What does Lithography mean?

Why do we call it Lithography?

3: How does a lithographic plate work?

4: There are three major types of sheet-fed printing machines. What are they? Which type prints the fastest?

5: What is the major difference between a sheet-fed press and a web press?

6: What is one of the major current uses for old letterpress printing presses?

7: Define printing.

8: What press design do most gravure presses use?

What feeding system do most gravure presses use?

9: Define "on-demand" printing.

Chapter 1, Overview of press technology

- 10: What is the major difference between the sequence of steps needed to prepare an image for conventional printing compared to the sequence of steps required to produce a job for on-demand printing?
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-
-
- 11: On-demand printing has a different "niche" than conventional printing. What is that niche?
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- 12: What is the major difference between the Heidelberg DI on-demand system and the Indigo or Xeikon on-demand systems?
-
-
- 13: What is the major difference between an offset-lithographic duplicator and an offset-lithographic press?
-
-
- 14: List at least two considerations that will help you decide which printing process to use to print a PARTICULAR job.
-
-

Chapter 2, Overview of offset-lithographic press systems

1: Why are there more ink rollers than water rollers in a press?

2: List three functions of a press feeder.

3: Define press register.

4: On a press, what two devices create or insure registration?

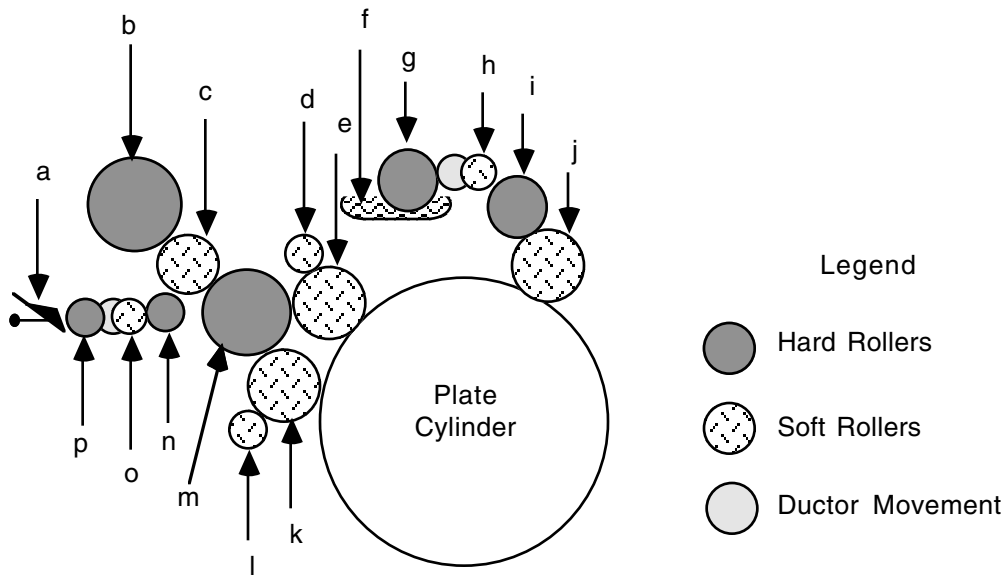
5: Why is a four cylinder design press superior to a three cylinder machine?

6: How can a single color press be transformed into a multi color press? (don't forget to name the cylinder that connects the parts!)

7: What cylinder design duplicator allows the machine to print offset, 2 sided lithography, dry offset and letterpress?

Chapter 2, Overview of offset-lithographic press systems

8: Refer to this diagram of the Chief 17 roller diagram to answer the questions below.



Describe the motion of roller "h".

Why does this roller "h" move that way?

Describe the motion of roller "i".

According to the diagram, the plate cylinder must turn _____ and roller "c" must turn _____

What is the function of roller "n"?

What does roller "d" do? _____

Rollers "b" and "m" are both oscillating rollers. What must be special about their oscillation in order to provide an even ink coverage on the plate? _____

Chapter 2, Overview of offset-lithographic press systems

9: Why must fountain solution contain gum arabic?

10: List three devices you will find in the delivery of an offset press.

11: Why isn't the delivery cylinder a solid cylinder?

12: In order for the lithographic press operator to produce the best quality printing, which system of the press is the most important to control? _____

13: What is gum arabic? Where does it come from? Why is it important? _____

14: An inking roller that transfers ink from one roller to another is called a _____.

15: What are the six main divisions or systems of an offset-lithographic press?

1. _____
2. _____
3. _____
4. _____
5. _____
6. _____

16: What system(s) are needed to transport the paper from the "blank" pile to the "printed" pile?

17: What system(s) provide the inked image on an offset lithographic printing press?

Chapter 2, Overview of offset-lithographic press systems

18: What system(s) are needed to provide the required pressure on an offset lithographic press?

19: What is the purpose of the dampening system on an offset lithographic press?

20: What is the purpose of the inking system on an offset lithographic press?

21: What is the purpose of a caliper (double-sheet detector)?

22: Calipers (double-sheet detectors) can do one of two things when they sense an extra thickness of paper. What are those two things?

1.

2.

23: What are the three cylinders in a three-cylinder design offset lithographic press?

1.

2.

3.

24: Name AND describe the extra cylinder added to a three-cylinder design to create a four-cylinder design press.

25: Which two cylinders are combined to form the large upper cylinder on a two-cylinder design press?

26: Presses of which cylinder design(s) print on the top of a sheet of paper?

27: Presses of which cylinder design(s) print on the bottom of a sheet of paper?

Chapter 2, Overview of offset-lithographic press systems

28: Some dampening rollers are covered with a cloth-like material. What is the material called AND why are some rollers covered with it?

29: How can the amount of ink leaving an ink fountain be controlled (list two ways)?

30: How much ink should leave the ink fountain every revolution of the press?

31: The length of the maximum sheet size a press can print is determined by the _____ of the cylinder while the width of the maximum sheet size is determined by the _____ of the cylinder.

32: Why do plate and blanket cylinders on sheet-fed offset lithographic presses have gaps?

33: What is contained in the gap of the impression cylinder on a sheet-fed offset lithographic press?

34: What is the name of the type of plate clamps our ABDicks and Chief 17 use?

35: What can easily happen to an offset blanket?

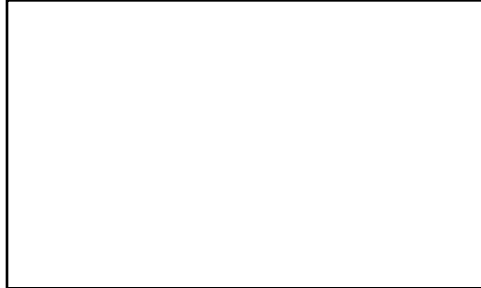
36: What are two drawbacks of an ejector-type delivery mechanism?

37: In a four-cylinder design machine, what carries the sheet from the delivery cylinder to the succeeding stacker?

38: How can a press operator prevent the ink from one sheet from sticking to the back of the next sheet in the delivery pile?

Chapter 2, Overview of offset-lithographic press systems

- 39: Assume that the box below is a press sheet. Mark and identify the ONLY two sides of the sheet that registration is concerned with. (Assume the box illustrates the front of the press sheet.)



Chapter 3, The dampening system

- 1: The purpose of the dampening system is to put fountain solution on the plate. What two adjectives describe the way that the solution should be applied to the plate?
_____ and _____
- 2: The fountain solution must stick to the rollers. In order to accomplish this, the metal the rollers are made out of must be _____.
- 3: What are three ingredients, besides water, that are placed in fountain solution?

- 4: What is it called when too much water is put on the plate and it gets into the ink?

- 5: Why must fountain solution contain acid?

- 6: What happens if too much acid is placed into the fountain solution?

- 7: How can we tell how much acid is in the fountain solution?

- 8: There is a scale to rank the acidity of a solution. It's numbers range from 0-14. What do numbers 1-6 mean? _____
What does number 7 mean? _____
What do numbers 8-14 mean? _____
How does a solution with a number 4 relate to a solution with a number 5?

- What happens if you mix a solution with a number 12 and a solution with a number 3?

- 9: Why should distilled water be used in fountain solution? _____

- 10: We use two terms ending in -phillic or -phobic and two terms ending in -sensitized. In relation to the lithographic plate, the image or printing area must be both _____
and _____, while the non-image or non-printing area must be both _____
and _____.

Chapter 3, The dampening system

11: In what way can the term emulsification be applied to the inking and/or dampening systems?

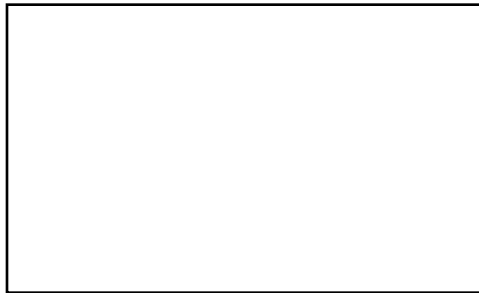
12: List two basic problems with the conventional dampening system and the cause of each.

Problem

Cause

_____	_____
_____	_____
_____	_____

13: In the box below, draw and label a sketch of the conventional dampening system. Include the plate cylinder and all rollers.



14: List two metals that the hard rollers in the conventional dampening system can be made of.
_____ and _____.

15: What chemical in the dampening solution causes the gum arabic to stick to the aluminum?
_____.

16: There are two pressure adjustments to be made on each form roller in the dampening system. List each pressure adjustment in the order it must be made in.

First _____
Second _____

—

17: Which of the two pressures made on each form roller must be set tighter?

Chapter 3, The dampening system

18: Why would water stops be necessary? Give an example.

Which type of water stop is the best?

19: What chemical can be added to fountain solution for a non-conventional dampening system in order to reduce the water's surface tension?

20: What test is used to find out if there is enough alcohol in the non-conventional fountain solution?

21: Besides testing the specific gravity, what other two tests do press operators need to make on fountain solutions?

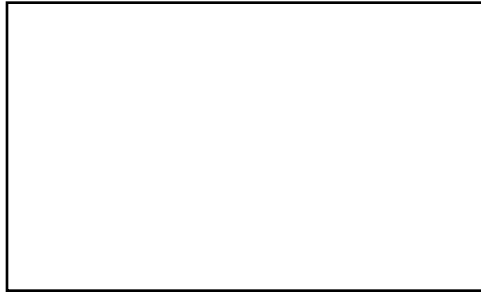
22: What should be special about the water used in fountain solution? Name two things.

23: Give the result of the manipulation of each water demand variable listed in the chart below.

Variable	Increase/Decrease	Effect on Water Demand
rH (relative humidity)	Increase	
Amount of Image	Decrease	
Temperature	Increase	
Amount of Gum Arabic	Decrease	
Plate grain	Increase	

Chapter 3, The dampening system

24: In the box below, draw and label a picture of the most popular non-conventional dampening system.



Now, name the system you drew above: _____

25: List three of the main problems with the conventional dampening system and how the non-conventional systems solve the problems.

PROBLEM	WAY NON-CONVENTIONAL SYSTEMS SOLVE IT
_____	_____
_____	_____
_____	_____

26: Solutions with pH measuring 1-6 are _____. A solution measuring 7 is _____. A solution measuring 8-14 is _____. The correct pH for fountain solution should measure _____. If you measure the fountain solution and the pH # is too low, add _____; if the number is too high, add _____.

27: What term is used to describe the property of the plate that allows the two areas (image and non-image) to select what they prefer to be covered with?

28: List three types of coverings for dampening form rollers.

Now, tell me which you think is best and why.

Chapter 3, The dampening system

29: What two ways can water fountain rollers be turned?

Which way is better and why? _____

30: What is the length of time the ductor touches the water fountain roller called?

What are two effects of lengthing this time? _____

31: What is the major problem with a dampening solution bottle?

How do newer presses solve this problem? _____

32: Which of these semi-conventional dampening systems uses a "bare-back" form riding on "bearers?" (*more than one answer may be correct*)

- A: Dampen-Orr B: Harris-Cottrell C: Levy-Flap
D: ABDick Integrated E: Didde-Glaser

33: Which of these semi-conventional dampening systems solve the "dry-spell" problem? (*more than one answer may be correct*)

- A: Dampen-Orr B: Harris-Cottrell C: Levy-Flap
D: ABDick Integrated E: Didde-Glaser

34: Which of these semi-conventional dampening systems requires the water to "float" on top of the ink and places the ink and water on the plate using the same form rollers? (*more than one answer may be correct*)

- A: Dampen-Orr B: Harris-Cottrell C: Levy-Flap
D: ABDick Integrated E: Didde-Glaser

Chapter 3, The dampening system

35: Which of these semi-conventional dampening systems uses a "water nozzle" spray to place water on the form roller? (*more than one answer may be correct*)

- A: Dampen-Orr B: Harris-Cottrell C: Levy-Flap
D: ABDick Integrated E: Didde-Glaser

36: The purpose of the Dampening System is to dampen the _____ area of the plate with the least amount of _____ to prevent_____.

37: Explain what a fountain solution recirculation device is used for:

38: On the Dahlgren System a _____ roller is used to control the amount of water that goes to the form. The form roller is made of _____ and puts both _____ and _____ on the plate.

39: List three effects of alcohol in the fountain solution:

40: If the fountain solution is too strong, its pH number will be _____ than 4.5. If it is too weak, the pH number will be _____ than 4.5

41: In order to cause the pH number of the fountain solution to go down, we must add _____. In order to raise the pH number, we must add _____.

42: Why does the pH number of the fountain solution go down after the fountain solution is made and the press starts running?

43: List at least 2 things that are likely to happen if the pH number of the fountain solution is too low.

Chapter 4, The inking system

- 1: What do modern presses use to replace the flexible spring-steel ink fountain blade found on older presses? _____
- 2: Why is there more than one form roller in the inking system? _____

- 3: What are the 3 parts or sections of the inking system?

- 4: Give two reasons why the inking systems needs more rollers than the dampening system.

- 5: What is the name of an ink roller that does not transfer ink?

- 6: What is the best kind of material that hard ink rollers can be made of?

- 7: What is the name of the large ink rollers that are driven by gears?

- 8: If you have an ink fountain with a flexible blade and you wish to close the keys, you should start closing the keys at the _____ and work toward the _____.
- 9: If you wish to buy a press that will prevent the press operator from needing to stir the ink to push it into the nip, what accessory should you buy for the fountain? _____
- 10: If you wish to feed two colors of ink to the rollers at the same time, use a(n) _____
_____. What keeps the two inks from mixing in the fountain?
_____ If you use this device, how much oscillation should you set on the vibrators? _____.
- 11: The best inking system would provide the most ink to which ink form rollers?
_____.
- 12: It is best to set the fountain roller to turn _____ during the ductor dwell and the keys open _____ in order to provide the most even ink flow.

Chapter 4, The inking system

13: Should the ink forms have more ink where the plate has more image?

14: List two things that can be done in order to reduce the chance of ghosting.

15: What is the main reason Dr. Waite asks you to learn about the good and bad points of such things as various inking systems and dampening systems?

16: If a hickie picker is used as an inking form roller, which form # position is it placed in? _____
Why is it placed in that position?

17: Why is it necessary to use the "sandwich" method to pre-set the ink form to vibrator pressure? _____

-

18: After the ink form to vibrator is pre-set using the "sandwich" method, you should check the adjustment using the "stripe" method. How wide should the ink-form to vibrator stripe be? _____

-

19: What are the two types of ink fountains that are available for presses?

20: When checking the ink-form to plate pressures, how can you keep track of which stripe is which? _____

-

21: What type of mounting device is used on form rollers to allow the pressures to be set?

A: Concentric

B: Eccentric

C: Cam

D: Ball bearing

22: If you set the ink-form to plate pressure too high, list two bad things that will happen.

Chapter 4, The inking system

23: What tool is used to clean the threads of an ink key? _____ What about the female threads of the ink fountain through which the keys pass? _____

24: How do ink rollers become glazed?

25: What are the two ways to remove wash-up solvent/dissolved ink from the rollers? _____ & _____
Which is best if you must continue printing the job the next day?

26: Why should a two-step wash-up solvent be used? _____

27: Why should solvent be placed on only 1/3 of the ink rollers at a time? _____

28: Explain what glaze is:

29: List the four functions of the inking system:

30: List the three sections of the inking system:

31: Assume you are deciding upon which press to buy. What specific things will you look for when judging the inking system of a press? Include at least three things.

Chapter 4, The inking system

32: Name at least three functions of the inking system.

33: Why must the offset-lithographic ink be so thick?

34: List one thing that could happen if the ink used on an offset-lithographic press was too thin.

35: What is the "resistance to flow" of a substance called?

36: A substance that is very thick has a _____ viscosity, while a substance that is thin has a _____ viscosity.

37: Give an example of a substance in your home kitchen that has a high viscosity.
_____ Now, give an example of a substance in your kitchen that has a low viscosity. _____

38: Why does the inking system need to help water evaporate from it?

How does the water get into the inking system?

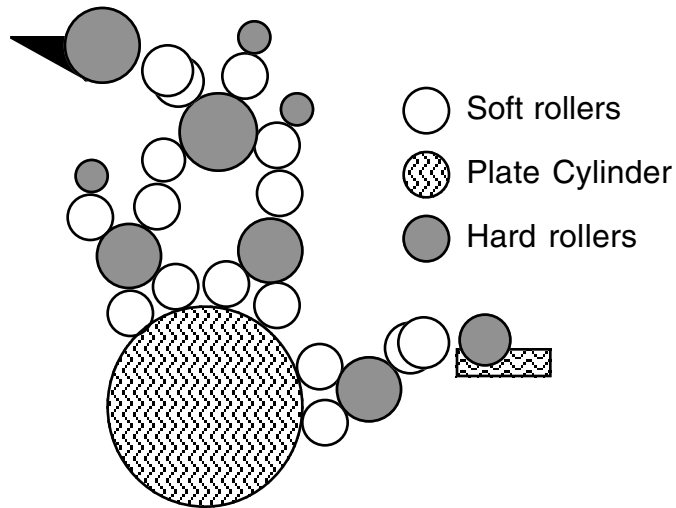
How do press designers improve the ability of the inking system to evaporate water?

39: One function of the inking system is to pick up and carry away foreign matter from the plate. List two types of foreign matter that could be found on a plate.

40: When choosing a press, there are several "rules of thumb" you can use to evaluate the inking system on that press. List any two of those rules.

Chapter 4, The inking system

41: Answer the questions below regarding this diagram.



Write a "3" on the #3 ink form roller.

Which way does the plate cylinder turn?

Which ink form gets the most ink?

42: How wide should the ink-form to plate pressure "stripes" be?

43: What should be done with the wash-up solvent "sludge" that is removed from the ink rollers by the wash-up blade?

Chapter 5, Troubleshooting/ink-water balance

1: MATCHING: Write the letter of the correct definition on the line preceding the term. Letters may be used more than once. All questions concern press ink/water balance troubleshooting.

- | | |
|---|-------------------------------------|
| _____ 1: Good Copy | A: Too much ink, too much water |
| _____ 2: Plugging-up or filling-in | B: Too much ink, water OK |
| _____ 3: Wash out | C: Too much ink, too little water |
| _____ 4: emulsification | D: OK ink, OK water |
| _____ 5: Image is too light, but it's solid | E: Too little ink, too much water |
| _____ 6: Plate image deteriorates | F: Too little ink, OK water |
| _____ 7: Ink doesn't dry quick enough | G: Too little ink, too little water |
| _____ 8: Image is dark but broken | H: Ink OK, too little water |
| _____ 9: Roller stripping | I: pH of fountain solution too low |
| _____ 10: Scum | J: Dirty dampeners |
| _____ 11: Too light plus scum | K: Smashed blanket |
| | L: Dried gum (glaze) on ink rollers |
| | M: None of the above |

2: Give two examples of people problems concerning the use of paper in the pressroom.

3: _____ consists of bits of coating that are just barely stuck to the paper. In order to remedy this problem, you must: _____

4: _____ occurs when the paper is well made, but the tack of the ink rips fibers out of the paper. List three ways to solve this problem.

5: _____ occurs when the ink becomes too short to transfer from roller to roller or blanket to paper. Give two ways to solve this problem.

Chapter 5, Troubleshooting/ink-water balance

6: Describe what will happen to paper if the rH of the paper is 50% and the rH of the pressroom is 75%. _____

7: Moisture will form on the outside of a glass of cold soda during the summer. What lesson does this simple fact give the printer concerning the proper handling of paper?

8: If you printed a black solid on this piece of paper, how would the solid look? _____

What is this called? _____

Why does it happen? _____

Would the same thing happen if this test were printed on coated paper?

9: What is the best way to prevent static?

10: What if we can't prevent the static? How can we get rid of it? List two ways.

1. _____

2. _____

11: What do you have to be careful of when stripping and setting up the press for a small card or envelope job? _____

12: If the sheet is molded by the pull of the ink tack in combination with the impression squeeze in a solid area at the end of the sheet, it is called: _____.

13: Assume a skid of paper was stored in a warehouse in which the temperature was 40° F. and it is brought into a pressroom which is heated to 72° F. What exactly should the printer do in order to prevent problems with rH?

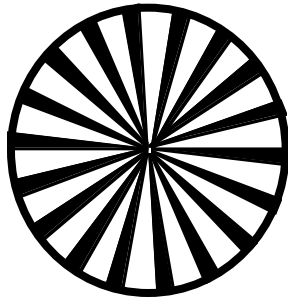
Chapter 5, Troubleshooting/ink-water balance

- 14: One of the problems we have is the fact that problems with an image on the press-sheet can often be produced by more than one cause. List three or more causes for an image that appears "too light" on the press sheet.

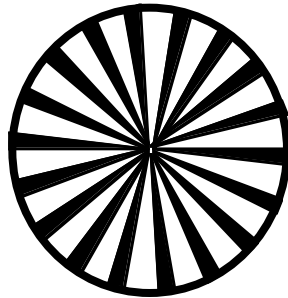
- 15: I told you a story about an old press-operator I know who spits in his fountain solution in order to make the image print cleaner. Why does it work?

- 16: What are the four steps that should be followed when trouble-shooting press problems?

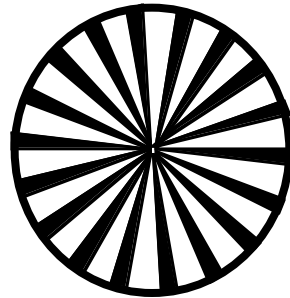
- 17: Alter the three star targets to simulate the press problem listed below each target.



Dot Gain



Slur



Doubling

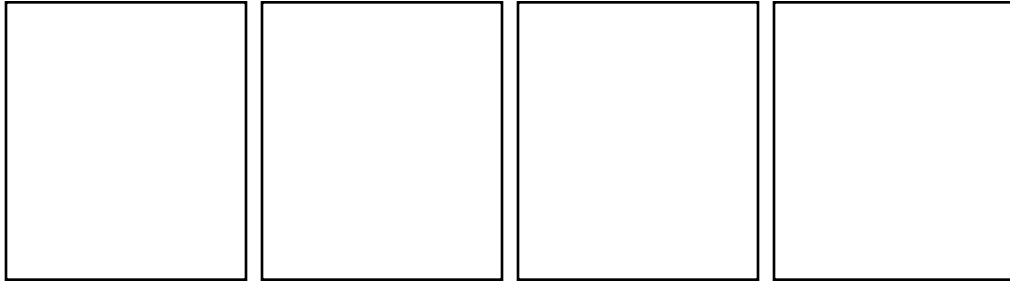
- 18: Tell me something that could go wrong if the paper is placed in the press-feeder with the grain direction going the wrong way.

- 19: Assume that a press-operator is going to print a job on NCR precollated paper. What should be done differently if the job is printed on a Davidson (2 cylinder-design press) as compared to an ABDick?

Chapter 5, Troubleshooting/ink-water balance

20: What must the press-operator be careful of when running paper that has a watermark?

21: Draw a labeled sketch of each of the four types of NCR paper below. Draw one in each box.



(Name)

(Name)

(Name)

(Name)

22: What is the difference between calender scale and loose dust?

23: Give me an example of something that has a long length.

24: Give me an example of something that has a short length.

25: Give me an example of something with high tack.

26: What causes picking?

27: What is the best way to eliminate picking?

28: How can you tell if the paper is dusting?

Chapter 5, Troubleshooting/ink-water balance

29: What is piling? _____

30: How can you prevent cracking?

31: If you are going to print pre-collated NCR paper on one side only on an ABDick 360 press, what type of NCR do you need?

What type of NCR would you need if you printed a two-sided job (one color on each side)?

32: If you printed a solid layer of black ink on this sheet of paper, what would it look like?

What is this phenomenon called?

What causes it?

33: What is special about an envelope feeder?

34: What can you do to make it possible to feed paper that is curled?

35: What would you do to eliminate tail-end hook?

36: If you are going to print a small-sized card on a Multilith press, what must be done special with the flat so that the sheet will be printed?

37: Assume you want to print a job with close register and the rH is 57%. What will happen?

Chapter 5, Troubleshooting/ink-water balance

38: What tool is used to measure the rH of the paper on the inside of the stack of paper?

39: If you want to prevent static, you must control the rH. What is the minimum rH that will prevent static from occurring?

40: What could happen to CFB NCR paper if you print it with too much impression-cylinder to blanket- cylinder pressure?

41: Set-off is worst when using what kind of paper?

42: If a sheet of paper flies out of the delivery of an ABDick duplicator (instead of going into the pile where it belongs), what is most likely the cause?

43: What could cause a delivered sheet to have "gripper bite?"

44: Most printing problems are the result of too much or too little _____. For example, too much of it will cause _____, while too little of it will cause _____.

45: What are the four steps that should be followed when trouble-shooting press problems?

46: Below is an illustration of an ink roller stripe. What is the problem and how would it be solved?



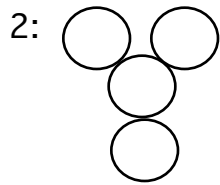
Chapter 5, Troubleshooting/ink-water balance

47: Below is an illustration of an ink roller stripe. What is the problem, what *caused* the problem, and how can the problem be solved? (*3 answers*)



Chapter 6, Press configurations: Offset

1: What kind of press prints on both sides of the paper at once? _____

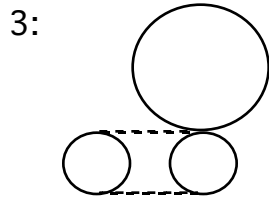


A: two color common-impession-cylinder duplicator

B: two-color perfecting press

C: duplicator with T-Head

D: none of the above

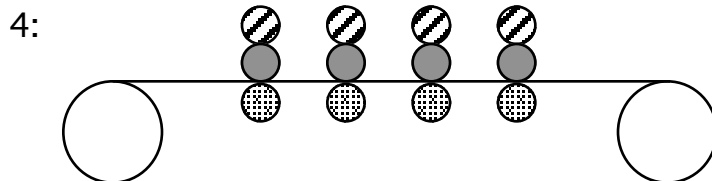


A: Two-color common-plate-cylinder press

B: Davidson duplicator

C: ABDick duplicator

D: T-51 head on a Chief 17



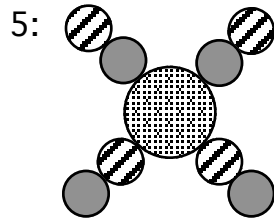
A: Business forms press

B: Web publications press

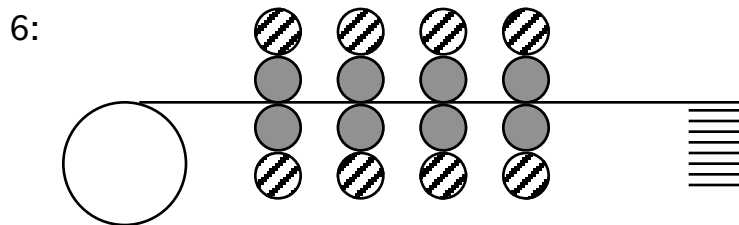
C: Newspaper press

D: 4-color sheetfed press

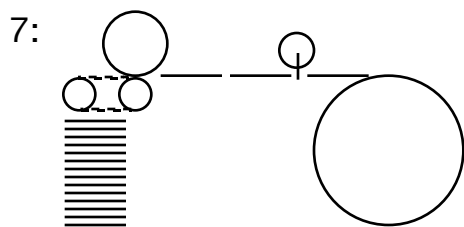
Chapter 6, Press configurations: Offset



- A: Four-color common-blanket-cylinder press
- B: Four-color common-impression-cylinder press
- C: Four-color business-forms press
- D: ABDick duplicator



- A: Four-color newspaper press
- B: Four-color web-offset business forms press
- C: Four-color sheetfed perfecting press
- D: Four-color web perfecting press



- A: Roll-to-sheet business-forms press
- B: Roll-to-sheet commercial web press
- C: Roll-to-sheet newspaper press
- D: Roll-converter duplicator

Chapter 6, Press configurations: Offset

8: Place the letter of the correct type of press on the line preceding the number of the identifying statement. Letters may be used more than once.

- | | |
|---|-----------------------------|
| _____1: Two-color common blanket | A: Duplicator |
| _____2: Uses a flying paster and festoon | B: T-51 |
| _____3: Prints two sides using a turn bar | C: Sheetfed press |
| _____4: An accessory made by Townsend | D: Commercial web press |
| _____5: Komori | E: Business-forms web press |
| _____6: Has a built-in dryer | F: Flat-bed press |
| _____7: Performs in-line numbering | G: Newspaper web press |
| _____8: Used for proofing | H: None of the above |
| _____9: "L" shaped cylinder arrangement | |
| _____10: Convertible perfecter | |
| _____11: Can produce perfed/folded computer-paper packs | |
| _____12: Doesn't stop to add more paper | |
| _____13: Numerous infeeds of paper | |
| _____14: ABDick | |
| _____15: Numerous paths through press | |
| _____16: ATF Chief | |
| _____17: Press is multiple-stories high | |

9: What is a major purpose of the "Jet-Press?"

10: What are at least 3 automatic functions of the ABDick Total-Copy Center?

11: Why are most single-color offset presses designed in a near right-angle relationship (called the "open Unit")?

Chapter 6, Press configurations: Offset

12: Major press manufacturers report a sales decline of four-color sheetfed presses and an increase in sales of six- or seven-color presses. Why?

13: What is meant by "convertible perfecter?"

14: Why does a common-impression-cylinder press prevent misregistration?

15: What are at least four non-offset-printing functions that can be performed on a Business Forms press?

16: What is the purpose of a festoon on a commercial web press?

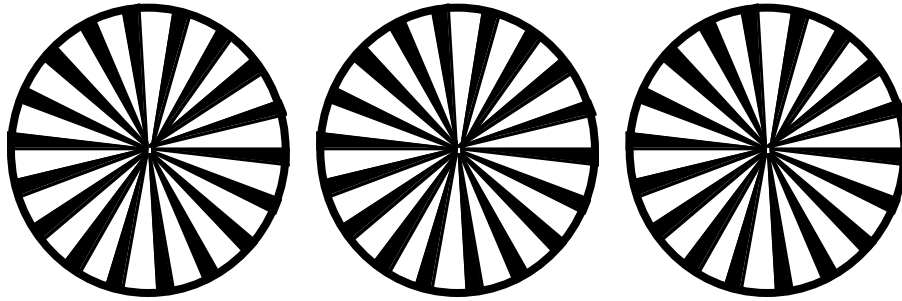
17: What are at least two ways that a commercial web press can deliver printed paper?

18: What is at least one advantage of a roll-converter press?

Chapter 7, Press configurations: non-offset

Chapter 8, Quality control devices

1: Alter the three star targets to simulate the press problem listed below each target.



Dot Gain

Slur

Doubling

- 2: T F Using a refrigerated circulator for dampening solution helps prevent the fluctuation of the solution's pH.
- 3: T F When using a durometer, a measurement of 0 would be found if you measured something completely inflexible, such as cast iron.
- 4: T F Form rollers generally have higher durometer numbers than other inking-system rollers.
- 5: T F You can increase a roller's durometer reading by using a commercially-available deglazing solution.
- 6: T F The Air Curtin is a device that directs streams of low-pressure air against an ink roller to evaporate excess water.
- 7: T F GATF Side-Guide Marks are used to check image-to-image registration.
- 8: T F Register marks, including OK marks, are used to check image-to-sheet registration.
- 9: T F A machinist's micrometer has wider jaws than a paper micrometer.
- 10: T F A Cady Gauge is a special micrometer with a wide throat for measuring the thickness of blankets in places other than the edges.
- 11: T F The Packing Gauge is used to measure the height of the blanket or plate above the bearer.
- 12: T F Torque wrenches are used to apply appropriate tension to plates.
- 13: T F A well-equipped pressroom should have a thermometer as well as an RH meter.

Chapter 8, Quality control devices

- 14: T F Brightness is a measure of how well a sheet of paper reflects red, green, and blue light.
- 15: T F A Colorimeter can be used to measure the color of paper, ink, and printed ink.
- 16: T F When measuring specular gloss, a Glossmeter is set to illuminate and absorb light at a 75° angle from the paper.
- 17: T F Specular gloss refers to shiny papers, while Contrast gloss refers to low-gloss papers.
- 18: T F An Opacimeter tests the ability of paper to obstruct light transmission.
- 19: T F When using an Opacimeter, if light is transmitted through the paper in the form of parallel rays, the paper is translucent.
- 20: T F A Spectrophotometer can be used by paper makers, ink makers, and paint companies to color match pigments.
- 21: T F A Photospectrometer provides an analysis of a paper's color in the standard CIELAB color space.
- 22: T F The ability of a paper to take up fluids is called absorbency.
- 23: T F Dimensional stability of a sheet of paper is measured with a Stabilimeter.
- 24: T F Paper is generally designed to be most dimensionally stable when the humidity level is 50–75%.
- 25: T F A Coefficient-of-Friction test should probably be performed on paper that will be used to produce paper bags or corrugated cartons.
- 26: Give an example of a use for a paper stock that resists water. _____
Now, given an example of a use for a paper stock that absorbs water.

- 27: To check the extent to which paper has a tendency to release dust, particles or coating, and paper fibers during printing, use a _____.

Chapter 8, Quality control devices

- 28: Which one of the following statements is false? A paper's
- A: bursting and tensile strength is low when paper is too moist.
 - B: ability to dissipate static is higher when the paper is drier.
 - C: fold strength is higher when the paper is more moist.
 - D: deformation increases when paper is more moist.
- 29: T F Paper should be able to withstand the normal ink tack of the inks to be used on a given press.
- 30: T F Reducing ink tack to decrease picking generally results in a better-looking image.
- 31: If you use a sheet of paper as a "gasket" and determine how long it takes for a given amount of air to leak by this "gasket," you are using the _____ tester.
- 32: When you are going to print labels that will be glued to products, it is important that the adhesive bond to the paper and that the paper not peel-off easily. To check the ability of a paper to stick to itself or another surface by means of adhesives, use a(n) _____.
- 33: T F A Basis Weight Meter automatically multiplies the weight of one sheet by 500 to arrive at the correct basis weight number.
- 34: T F The amount of pressure that is required to rupture paper when pressure is uniformly applied to one of the paper's sides is called puncture resistance.
- 35: T F The bursting strength of cartons must comply with shipping regulations.
- 36: T F Hard papers have higher compressibility than soft papers.
- 37: Give an example of a printed product that must have high folding endurance.

_____.
- 38: If you measure the force required to puncture a sheet of paper with a triangular pyramid point, you are using a _____.

Chapter 8, Quality control devices

39: Give an example of a paper that must have high stiffness.

Give an example of a paper that must have low stiffness.

40: T F A paper that can support its own weight without leaning over has high tensile strength.

41: T F Internal tearing strength is the resistance of paper to tear after a tear has already been started.

42: T F Web-presses must have paper that has high edge tearing resistance.

43: T F Tensile strength measures the amount of elongation a paper can endure before it breaks.

44: T F Paper has more tensile strength across-the-grain as compared to the grain direction.

45: T F The Thwing-Albert Quick Peek Tester is used to check the undertone of printing inks.

46: T F Drying time testers may not be completely accurate because they do not consider press variables, such as the amount of water fed.

47: To measure the thickness of the ink that has been applied to a sheet, use a(n)

_____.

48: T F An inkometer is really a tack tester.

49: T F A Zahn cup is used to measure the viscosity of paste inks.

50: If you move a strip of unprinted paper over a printed test specimen of the same paper at a specified arc for a specified number of strokes, you are using a(n) _____ tester.

51: If you need to determine how well a printed ink film will stand up against fading, dissolving, and other weather-related conditions, use a(n)

_____ tester.

Chapter 8, Quality control devices

- 52: Which of the following does *not* appear on the GATF Compact Color Test Strip?
- A: Patches of solid layers of each process color.
 - B: Patches of overprints of each process color.
 - C: Star Targets for each color.
 - D: Slur gauge.
- 53: Describe how the GATF Dot Gain and Slur Gauge can differentiate between dot gain without slur and dot gain caused by slur.
-
-
-
-
- 54: Which of the following does the GATF QC strip *not* indicate?
- A: ink film thickness
 - B: ink-water balance
 - C: image density
 - D: image quality
- 55: T F A minor change in the dot size in the mid-tone portions of a printed halftone cause a marked effect on the perceived tonal range of the halftone.
- 56: If you are inspecting a GATF Midtone Dot Scale, and the dots in the target marked "10" touch the cross, what does it mean?
-
- 57: T F The reflection densitometer is the most basic QC device in the pressroom.
- 58: T F Density readings for each process color are standards—they should not vary from paper to paper, ink to ink, or job to job.
- 59: T F Density readings for each process color should remain consistent throughout the press run.
- 60: T F Acceptable variation in measured ink density may be greater or smaller depending upon the quality level assigned to a given job.

Chapter 8, Quality control devices

61: Why does printed dot-size vary from the dot-size found on the plate?

—

62: Calculate the percent trap for a blue overprint if DOP is 2.50, D1 (cyan) = 1.40 and D2 (magenta) = 1.40. Show your work and circle your answer.

63: Calculate hue error given the following density readings of a solid ink layer using red, green, and blue filters. The high reading = 1.40, the medium reading = 0.80, and the low reading is 0.60. Show your work below and circle your answer.

64: Calculate grayness given the following density readings of a solid ink layer using red, green, and blue filters. The high reading = 1.40, the medium reading = 0.80, and the low reading is 0.60. Show your work below and circle your answer.

65: T F The lower the grayness of a process color, the higher its purity.

66: T F High print contrast is an indication of good shadow contrast in a reproduction.

67: Which one of the following statements regarding color view booths is *not* true?

A: The light should have a color temperature of 5000° K.

B: The lamps must warm up 3–5 minutes before using the viewing booth.

C: The lamps must be positioned 10–15° different than the viewing plane.

D: The light source must closely simulate daylight.

Chapter 9, Safety/OSHA

- 1: The law issued by the government and OSHA is called the _____
Communication Regulation.
- 2: The Hazard Communication Regulation says you have a "Right to _____" what
hazards you may face on the job.
- 3: You have certain rights as an employee because you work with

_____.
- 4: T F Your employer must educate you about the hazardous materials used in your
workplace.
- 5: T F It is important to understand warning labels.
- 6: T F Only you can really protect yourself on the job.
- 7: If you are not sure about how to handle a particular hazardous material ask:
 - A: your parents
 - B: your employer (instructor)
 - C: Your next door neighbor
 - D: None of the above
- 8: Your employer must provide training that teaches you how to deal with:
 - A: traffic violations
 - B: hazardous materials
 - C: personal problems
 - D: none of the above
- 9: The Hazardous Materials _____ Roster lists the hazardous materials used in
your workplace.
- 10: MSDS stands for _____
- 11: You should not use a material if the container doesn't have a
_____.

Chapter 9, Safety/OSHA

- 12: T F A hazardous material is a material that could cause injury or death to a person or could damage and pollute land, air or water.
- 13: T F The words CAUTION, WARNING or DANGER on a product label represent varying degrees of hazard of a material.
- 14: If a container doesn't have a label, you should:
- A: not handle it until you know what is inside.
 - B: find out what the material is from your employer.
 - C: both a and b
 - D: none of the above
- 15: T F Your employer is required to have an MSDS for every hazardous material you work with.
- 16: Which of the following sources can provide information about a hazardous material?
- A: the Hazardous Materials Inventory Roster
 - B: the product label
 - C: the product MSDS
 - D: your employer
 - E: all the above
- 17: Name three ways that exposure to a hazardous material can occur.
-
-
-
- 18: After learning how exposure to a hazardous material can occur, the next step is to use personal _____ equipment to prevent exposure.
- 19: If exposure to a hazardous material occurs, you should check the product _____ and the MS _____ for first-aid procedures
- 20: T F You should use personal protective equipment any time you work with a hazardous material.
- 21: T F Exposure to a hazardous material can have short-term and long-term health effects.

Chapter 9, Safety/OSHA

- 22: T F Personal protection requirements can be found on the container label and the product MSDS.
- 23: T F It is a waste of time to learn first-aid procedures and know where supplies are kept before exposure occurs.
- 24: A supplied-air respirator should be used when:
- A: enough oxygen is present
 - B: not enough oxygen is present and the air is contaminated
 - C: when an air purifying respirator is not effective
 - D: both b and c
- 25: Before using protective equipment you should inspect it for:
- A: tears
 - B: rips
 - C: damaged parts
 - D: all the above
- 26: Storage information can be found on the container _____ and on the product MS _____.
- 27: If you're not sure about mixing two materials together, ask your _____.
- 28: T F The area you store a material in is not important if the container is tightly sealed.
- 29: T F Storage information can be found on the product MSDS.
- 30: T F Protective equipment is never necessary when mixing materials together.

Chapter 9, Safety/OSHA

- 31: Storage and mixing information can be found
- A: on the product MSDS
 - B: on the product label
 - C: both a and b
 - D: by asking your employer
 - E: all the above
- 32: Before mixing two materials together you should:
- A: be informed about the materials
 - B: properly prepare yourself and the mixing area
 - C: use the proper protective equipment
 - D: all of the above
 - E: a and b only
- 33: The product container _____ and the product Material Safety Data Sheets are the best places to start to prepare yourself to handle spills.
- 34: Large spills should be reported to your _____ immediately.
- 35: You should not mix different hazardous _____ together in the same container when disposing of the materials.
- 36: T F It is important to use the proper absorbents when cleaning up a spill.
- 37: T F It is illegal to pour hazardous materials down a drain or wash them into sewers.
- 38: T F If a spill occurs in your work area, it is important to understand if the spill is small or large to know what action to take.
- 39: Disposal instructions can be found:
- A: on the product MSDS
 - B: by asking your employer
 - C: are not needed if you want to pour the waste down a drain
 - D: both a and b

Chapter 9, Safety/OSHA

- 40: Your role in the waste disposal process includes:
- A: mixing different wastes in the same container
 - B: using protective equipment during the disposal process when required
 - C: placing wastes in proper storage containers
 - D: both b and c
- 41: The two legal ways of disposing of hazardous waste are:
- A: recycling the waste or sending the waste to a licensed disposal facility
 - B: pouring the waste into drains and sewers
 - C: none of the above
- 42: The basic ingredients for a fire or explosion are: _____ + _____ + _____
- 43: A flammable material is a material that catches _____ easily.
- 44: To find out if a material is flammable, read the container _____ or the product MSDS.
- 45: T F The lower the flash point, the more dangerous the material is.
- 46: T F If a fire occurs, you should notify your employer immediately.
- 47: T F When working with small amounts of hazardous materials, it is not important to make sure the work area is well ventilated.
- 48: Matches, open flames, cigarettes and sparks are all:
- A: uncontrollable
 - B: related to air
 - C: should be ignored
 - D: sources of ignition

Chapter 9, Safety/OSHA

- 49: If a fire is uncontrollable you should:
- A: try to put the fire out anyway
 - B: notify the fire department and get out of the area
 - C: use personal protective equipment while fighting the fire
 - D: none of the above
- 50: _____ can cause explosions.
- A: tightly capped containers
 - B: poor ventilation and build-up of vapors
 - C: chemical reactions
 - D: both b and c
- 51: How should an acid and water be mixed together safely? _____

- 52: What are two important personal protective devices you should wear in the lab?

- 53: Explain how to lift a heavy object. _____

- 54: List two waste-products that we generate that are classified as "hazardous waste."

- 55: What does "OSHA" mean? _____

- 56: Where should dirty/oily rags be placed? _____

- 57: What type of material is on fire if it is a class A fire? _____ How can you extinguish such a fire? _____
- 58: What type of material is on fire if it is a class B fire? _____ How can you extinguish such a fire? _____

Chapter 9, Safety/OSHA

59: What type of material is on fire if it is a class C fire? _____ How can you extinguish such a fire? _____

60: When you use chemicals, how should you protect your hands?

61: After you use chemicals, and especially before you eat, you should be sure to

62: What is the general rule about machine safety?

63: T F Never leave a press running unattended.

64: T F Only one person should run a press at a time.

65: T F It is OK to lubricate a machine while it is running.

66: T F Guards may be removed from a press so that you can have easier access to moving parts while the press is running.

67: T F Never wear long sleeves or jewelry around a press.

68: T F Never clean rollers on a press with a rag while the machine is running.

69: T F Overloading electrical circuits is a major source of fire.

70: If someone gets injured, what should you do?

71: Describe when a "lockout/tagout" procedure would be required.

Chapter 9, Safety/OSHA

72: What is an "eyewash station" and why must there be one in a press room?

73: T F Smoking is generally allowed in pressrooms.

74: T F It is permissible to use extension cords on a short-term only basis.

75: T F All machines must be guarded wherever a nip point exists.

Chapter 10, Environmental Compliance

1: The Federal agency charged with enforcing environmental standards is the

_____ while the Texas State agency is the _____.

2: Cities that do not meet the National Clean Air Act standards are known as

_____. These areas are required by Federal Law to decrease their pollution by _____% by 1996. Houston/Galveston has the _____ worst air quality in the nation (after Dr. Waite's home town) and is known as a _____ area.

3: List at least three materials used in offset lithographic presswork that emit VOCs.

4: In Houston, there is a _____ ton limit of VOC emissions per machine, while there is a _____ ton limit of VOCs per facility. Tonnage is based upon _____ emissions (if the machine were operating at its maximum speed for 24 hours per day), not actual emissions.

5: If a company reduces its VOC emissions, it can _____ some of those reduced tons to another company that wishes to expand its production capability.

6: What are the at least three of the four "characteristics" that are used to determine if a material is a hazardous waste?

7: T F If there has been a fatal accident in your plant, OSHA is sure to inspect your facility.

8: T F "Programmed Inspection" means that an OSHA inspector visits your plant on a regular basis.

9: T F OSHA inspectors may visit your plant without any prior warning.

10: Which of the following types of OSHA violations will likely result in the highest fine?

- A: Other than serious B: Serious C: Regulatory
D: Willful

Chapter 10, Environmental Compliance

- 11: California has its own state operated OSHA, while Texas has a _____ OSHA agency.
- 12: Which of the following hazardous waste generator categories best describes most printing plants?
- A: conditionally exempt small quantity generator
 - B: small quantity generator
 - C: large quantity generator
- 13: Which of the following printing materials is not typically a hazardous waste?
- A: photographic fixer
 - B: unprocessed photographic film
 - C: paper
 - D: ignitable solvents
- 14: If the amount of air pollution emitted by a Houston printer is less than the amount that would require a state of Texas permit, the printer must register with:
- A: the City of Houston
 - B: Harris County
 - C: the Federal EPA
 - D: both Galveston and Harris counties

Chapter 11, Pre & makeready

1: List and define the three types of chargeable press time.

2: Why is downtime nonchargeable?

3: What is premakeready and what is its function?

4: How can proper space allocation and equipment location help increase a press crew's productivity?

5: When designing the floorplan for a pressroom, what must be considered with regard to aisles?

6: What attribute(s) of the floor in a plant might make it impossible to situate a press in a given location?

7: The quick availability of proper tools helps increase the productivity and efficiency of a press crew. List three *specialized* tools that press operators need.

8: T F To increase a press crew's efficiency, all materials should be delivered to the press JIT (*just in time*).

9: Between the time that a skid of paper is delivered to the plant and the time that paper is actually printed, what must be done to the paper? Why?

Chapter 11, Pre & makeready

10: Why is it bad practice to test new materials or supplies during the makeready of a "live" job?

11: What is a *color wash* and why would one be needed?

12: Why is proper scheduling an important aspect of premakeready?

13: When does makeready *begin*? When does it officially *end*?

Chapter 11, Pre & makeready

14: Match the type of makeready in the right column with the proper description in the left column. Write the letter of the correct makeready type on the line preceding the item number. Letters may be used more than once.

- | | |
|---|-------------|
| _____1: All steps necessary to start a job from scratch | A: Simple |
| _____2: Requires only new plates, ink change, and unloading and reloading paper. | B: Partial |
| _____3: Requires only a plate change. | C: Complete |
| _____4: Changing from one signature to another when printing a book. | |
| _____5: Plates and packing are changed, blankets are washed, feeder, registration, and delivery systems are adjusted. | |
| _____6: Minor changes to feeder, registration system and delivery. | |
| _____7: Running previously printed sheets through the press for additional impressions. | |

15: In the text and during lecture, makeready was compared to a *pit stop* during a automobile race. Why is a *pit crew* an appropriate metaphor for a *press crew*?

Chapter 11, Pre & makeready

16: The 13 makeready procedures are listed below in groups of 4 or 5 procedures. Within *each* group, indicate the *order* each procedure should be accomplished by placing a 1 before the *first* procedure that should be completed, a 2 on the line before the *second* procedure to be completed, and so on. Remember to rank *only* those procedures within each set—you should not write any number higher than 5.

- ___ Set sheet-handling mechanism
- ___ Prepare the press for the new run
- ___ Pack and mount plates
- ___ Check copy, plates, paper and ink against job ticket
- ___ Prepare the makeready books and place them in the feeder

- ___ Prepare the inking system
- ___ Prepare the dampening system
- ___ Check and prepare new blankets (if necessary)
- ___ Make trial impressions

- ___ Inspect trial impressions
- ___ Get customer OK
- ___ Make adjustments to image position, impression quality, and density
- ___ Repeat steps 9-11 until job meets customer specifications.

17: Some premakeready and makeready tasks should be assigned to the head press operator, while others are best assigned to the second press operator or the feeder operator. Match the particular task in the left column with the appropriate operator in the right column. Write the letter of the appropriate operator on the line preceding the number of the task.

- | | |
|--|----------------------------------|
| _____1: adjust feeder and paper stock | A: head (first) press operator |
| _____2: mount new plates | B: second press operator |
| _____3: check width of ink stripes | C: feeder operator |
| _____4: correct feeder, register and delivery settings | D: head or second press operator |
| _____5: check pH of dampening solution | E: second or feeder operator |
| _____6: discuss particulars of the job with supervisor | |
| _____7: examine plates for defects | |
| _____8: register plates | |

18: Describe a makeready *book*.

Chapter 11, Pre & makeready

- 19: During the press run, the press crew members remove sheets from the delivery to be inspected. What are these sheets called? _____ List at least three things the press crew should check on these sheets.

Chapter 12, Sheet Control System

1: On a press, what two devices create or insure registration? _____

2: How can a two color press be transformed into a four color press? (don't forget to name the cylinder that connects the parts!)

3: List three devices you will find in the delivery of an offset press.

4: Why isn't the delivery cylinder really a cylinder?

5: Why can the stream-fed press operate at higher operating speeds than successive sheet-fed presses?

6: Assume that the box below is a press sheet. Mark and identify the ONLY two sides of the sheet that registration is concerned with. (Assume the box illustrates the front of the press sheet.)



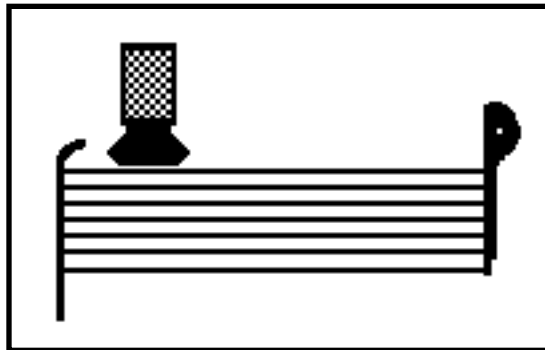
7: What are the three main sections of the sheet control system?

Chapter 12, Sheet Control System

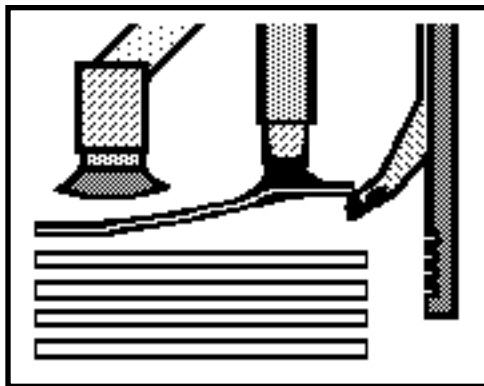
- 8: In the box below, draw and label a diagram showing the only appropriate place to position hard rubber tires (truck-rollers) in relation to a sheet stopped at the front stops.



- 9: Identify the type of feeder shown in the box below. Write your answer on the line under the box.



- 10: Identify the type of feeder shown in the box below. Write your answer on the line under the box.



Chapter 12, Sheet Control System

11: What are the 3 points of the 3 point-register system? _____

12: What are the four types of INSERTION devices used on sheet-fed presses?

13: What type of INSERTION device is found on the ABDick press?

14: What type of side guide requires a CORRUGATING bar if large sheets of paper are to be properly guided?

15: What type of side guide is found on the ABDick press? _____

16: What side-guide-side is used for the FRONT of a "sheet-wise" or "work-and-turn" imposition?

What side-guide would be used for the BACK?

17: List three things that the INSERTION device does to the paper.

18: List the 3 types of INSERTION devices used on sheet-fed presses and give an example of a machine in our shop which uses each.

Type of Insertion Device

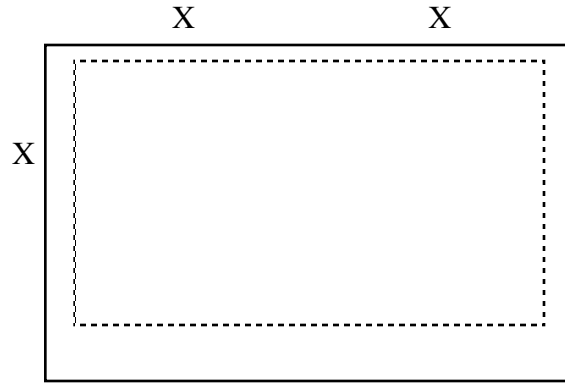
Brand of press in our shop using it.

_____	_____
_____	_____
_____	_____
_____	_____

19: Why should *double-sheet detectors* be better called *extra-sheet detectors*?

Chapter 12, Sheet Control System

- 20: There is an illustration of a plate below. The dotted lines indicate the edge of the press sheet in relation to the plate. I want you to draw on the diagram illustrations indicating where register marks, which help the press operator check for side-guide and front-stop mis-register, will be positioned. Draw side guide and front-stop register marks on the diagram. Be sure to properly label each of your marks. As usual, the "X's" indicate front-stop and side-guide sides.



- 21: When an *extra-sheet detector* "trips" on a large press, what happens? List at least three things.

- 22: Why are pile height control governors different on successive-sheet as compared to stream feeders?

- 23: Why do we need to "condition" paper?

Tell me two general rules you can use when deciding how long paper needs to be "conditioned?"

How can you tell **exactly** how long it will take to "condition" a skid of paper?

Chapter 12, Sheet Control System

24: Describe where each of the following ramp devices should be used:

Metal, plastic, or glass marbles:

Rotary brushes:

Flat stuff brushes:

25: Describe the action of at least two different kinds of *extra-sheet detectors*.

26: What special precautions must be taken when setting front stops?

27: What is the proper way to check the pressure on *forwarding-* and *truck-rollers*?

28: If a press has multiple front stops, how many of them should be set to touch the sheet of paper?

29: When will happen to the amount of *gripper bite* if you change the front-to-back position of the front stops?

30: How can front stops be used to square a crooked image?

31: What will happen if the timing of the front stops and the swing grippers is not precisely set?

Chapter 12, Sheet Control System

32: Why is *buckle* necessary when setting a feed-roll insertion device?

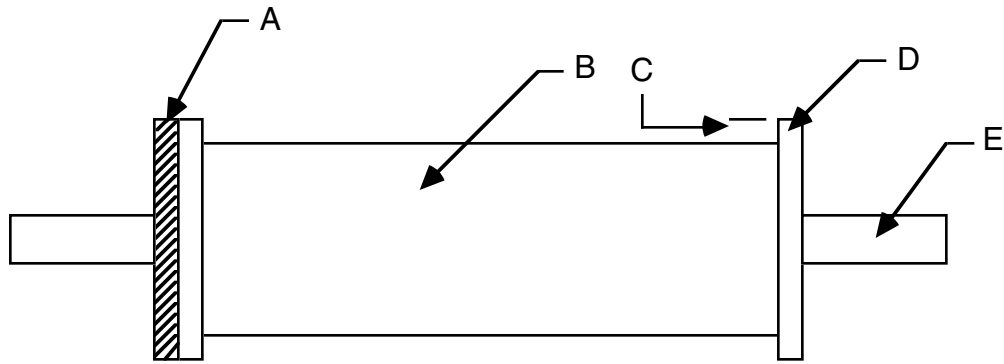
33: How can a *bowed* sheet be properly registered?

34: What are the two majors types of side-guide devices found on sheet-fed presses? Indicate the type of press that you would expect to find each type of guide.

35: How is a web of paper on a web-fed press guided? What is the name of the side-guide device? How does it work?

Chapter 13, Printing Unit

1:



Using the above diagram, identify each of the elements of the plate cylinder indicated by arrows and letters.

- a. (Include type of gear) _____
- b. _____
- c. _____
- d. _____
- e. _____

2: Name two plate-positioning devices and/or techniques.

- a. _____
- b. _____

3: What tool is used to be sure that the offset blanket is not tightened too much?

4: Why is the clearance between the blanket and impression cylinders adjustable?

5: Why do spur gears require an additional "split" or "anti-backlash" gear?

6: How does the design of the plate cylinder allow for a forward or reverse "shift" of the image?

7: How does the design of the plate cylinder allow for angling or "cocking" the image?

Chapter 13, Printing Unit

8: Name two plate-positioning devices and/or techniques.

9: Why is the clearance between the blanket and impression cylinders adjustable?

10: How would you test to see if the plate and blanket cylinders are parallel to each other?

11: What is the best way to find out what type of lubricant should be used on each moving part of a printing press? _____

12: List three items that must be lubricated regularly on a printing press.

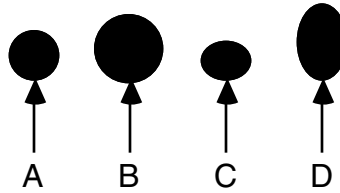
13: With regard to cleanliness, give at least two indications that would lead you to believe that a press operator is incompetent.

14: What special safety/cleanliness precaution should you take if a printing press' automatic lubrication system allows the oil to drip down to the floor?

15: Why, in particular, is it extremely important to keep bearers spotless?

Chapter 14, Packing and Printing Pressures

1:



If A above is the correct "normal" dot, name B, C and D. Also tell what causes each.

<i>Letter</i>	<i>Name</i>	<i>Cause</i>
B	_____	_____
C	_____	_____
D	_____	_____

2: Optimum squeeze is usually _____". For "normal" printing, this is made up of _____" additional packing under the plate and _____" additional packing under the blanket. If we wished to print "short" we move packing from under the _____ and place it under the _____. If we wished to print "long" we move packing from under the _____ and place it under the _____.

3: Assume that the packing guage is placed on the packed plate with its sensor resting on the bearer. Further assume that the dial reads +.003. What does this mean?

4: Assume that you wish to measure the thickness of a blanket. What problems will you encounter and how will you solve them?

5: Assume that the proper printing pressure for a particular press is .004" and the press- operator packs each cylinder .004" above the bearer. What will you expect to see on the press sheet?

6: What is the "rule" for packing a plate and blanket?

7: Assume we have a four color job to print. Some colors will be printed long, some short and some normal. In what order would they be printed?

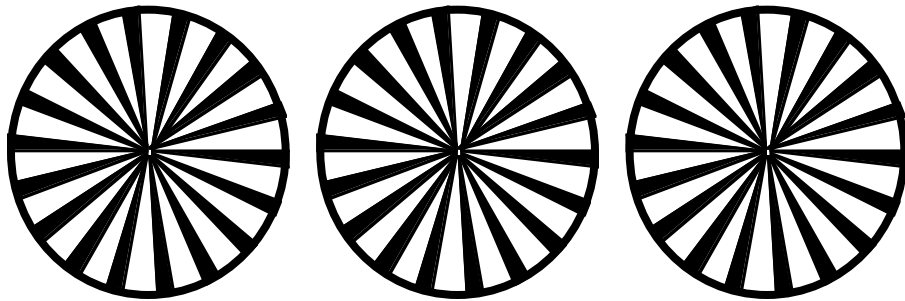
_____ 1st color; _____ 2nd color; _____ 3rd color; _____ 4th color

Chapter 14, Packing and Printing Pressures

8: How can you test to see if there is the correct pressure between the plate and blanket cylinder bearers?

9: What is the difference between *slur* and *dot gain*?

10: Alter the three star targets to simulate the press problem listed below each target.



Dot Gain

Slur

Doubling

11: What is meant by "packing to bearer height?"

What will happen if we "pack to bearer height?"

12: Assume that the plate cylinder undercut is .016", the blanket cylinder undercut is .080", the plate is .008" and the blanket is 0.065", and that printing pressure is .004 (equally divided between the cylinders). Calculate the packing required for the plate and blanket. Show your work and place your answers in the boxes below.

Plate Packing

Blanket Packing

Chapter 14, Packing and Printing Pressures

13: Assume you need packing of .006". Which of the following would be the best combination of packing sheets?

- A: one sheet of .006" packing
- B: two sheets of .003" packing
- C: three sheets of .002" packing
- D: six sheets of .001" packing

14: What tool is used to accurately measure the thickness of a blanket?

15: How can you find a low spot in a blanket?

16: List three ways to repair a low spot on a blanket. Indicate if the repair is temporary or permanent.

17: How can you tell if a low spot is on the blanket or a dent in the blanket cylinder?

18: Assume you want to patch a low spot in a blanket using Varn Permanent Blanket Patch or using torn strips of paper. Also assume that you have located the low spot and have determined the spot is caused by the blanket rather than by the cylinder. How can you transfer the location of the low spot to the back of the blanket so that you may patch the blanket?

19: Why shouldn't you add an additional packing sheet to compensate for a low spot on a blanket?

Chapter 14, Packing and Printing Pressures

20: What are the two types of packing sheets that are available for use on an offset press?

Which is the only type you should use under a blanket?

21: What instrument is used to measure the thickness of a plate?

22: Packing sheets are usually placed under both the plate and the blanket. The packing sheets should be cut the same width as the _____, but narrower than the

_____.

Chapter 15, Materials, Chemicals and Supplies

1: Why does paper have a "grain direction?"

2: What type of paper should be used if you want to write on the paper with a liquid-ink pen?

3: What's the rule concerning the type of paper to be used for text-only books?

4: What's the rule for the type of paper to be used for books that are MAINLY pictures?

5: What can you do to the paper to make your letterhead look better than the average person's?

6: What kind of paper should be used for a document that you want to last for many years?

7: What makes book paper opaque?

8: If you want to print business cards, what kind of paper should be used?

9: What is the difference between antique and wove finish paper?

Chapter 15, Materials, Chemicals and Supplies

10: What is the difference between textured and embossed paper?

11: What's the rule for the choice of paper when the job contains both pictures and text?

12: What's the difference between whiteness and brightness?

13: How many sheets of bond paper are in one ream?

14: List the basic sizes and the most common finished product size of each of these papers

<i>TYPE</i>	<i>BASIC SIZE</i>	<i>COMMON PRODUCT SIZE</i>
BOND	_____	_____
BOOK	_____	_____
COVER	_____	_____

15: A customer's case binding is limited to 1 1/2 inches in thickness. A 1000 page book must fit within the 2 inches. What must the average caliper of each sheet of paper be? Show your work and place your answer in the box.

Chapter 15, Materials, Chemicals and Supplies

16: In order to define BASIC WEIGHT, how many sheets of paper must be weighed?
_____ What size paper must be used? _____ What unit
of measurement must the weighing scale be graduated in? _____.

17: Give three ways that the basic weight can be listed on a paper package label.

18: Find the equivalent weight of 26 X 40 60# book. Show work below and place your answer in the box.

19: Find the M weight of 8 1/2 X 14 20# bond. Show work below and place your answer in the box.

20: Calculate how many 8 1/2 X 11 press sheets you can get out of a 23 X 29 parent sheet. Show work below and place your answer in the box.

Chapter 15, Materials, Chemicals and Supplies

21: Calculate how many 9 X 12 press sheets you can get out of a 26 X 40 parent sheet. Show work below and place your answer in the box.

22: A customer orders 45000 copies of an 7 X 8 1/2" flier to be printed on 20# bond paper. The paper company sells the required paper in 17 X 22, 17 1/2 X 22 1/2, 17 X 28, 19 X 24, 22 X 34 and 28 X 34. You have a 19 X 25" press. The CWT for the paper is \$87.80. Find the following:

up:

Press sheet size:

Parent sheet size to buy:

press sheets out of each parent sheet:

% of parent sheet to be wasted:

parent sheets to buy:

M weight of parent sheet size:

Total weight of parent sheets to buy:

Total cost of parent sheets to buy:

23: Why is it possible for me to make the ridiculous statement that $20 > 50$?

Chapter 15, Materials, Chemicals and Supplies

24: What is the difference between *basic size* and *standard size*?

25: Assume I say to you that I want some 20 pound paper. What type of paper am I talking about?
_____ Now, assume I want some 60 pound paper. What kind will that be?

26: Give two reasons why printers would need to know how much paper will weigh before it is printed.

27: Find the M weight of 8 1/2 X 11 60# book. Show work below and place your answer in the box.

28: Find the equivalent weight of 5 X 7 65# cover. Show work below and place your answer in the box.

Chapter 15, Materials, Chemicals and Supplies

29: Find the total weight of 7395 sheets of 17 X 22 20# bond. Show work below and place your answer in the box.

30: Find the total weight of 12000 sheets of 8 1/2 X 11 50# book. Show work below and place your answer in the box.

31: If you cut 8 1/2 X 11 sheets from a 23 X 35 sheet, there will be wasted paper. Calculate the percent waste paper that will result. Show work below and place your answer in the box.

32: If you cut 11 1/2 X 17 1/2 sheets from a 25 X 38 sheet, there will be wasted paper. Calculate the percent waste paper that will result. Show work below and place your answer in the box.

Chapter 15, Materials, Chemicals and Supplies

- 33: Below you will find an illustration of a press sheet. Identify the number of printing faces, number up and number on. Place your answers on the lines under the illustration.

A	A
B	B
C	C
D	D
E	E

ON: _____
UP: _____
FACES: _____

- 34: Below you will find an illustration of a press sheet. Identify the number of printing faces, number up and number on. Place your answers on the lines under the illustration.

A	A
A	A
B	B
B	B

ON: _____
UP: _____
FACES: _____

Chapter 15, Materials, Chemicals and Supplies

- 35: A customer orders 70000 copies of an 8 1/2 X 11" flier to be printed on 16# bond paper. The paper company sells the required paper in 17 X 22, 17 1/2 X 22 1/2, 17 X 28, 19 X 24, 22 X 34 and 28 X 34. You have a 26 X 40" press. The CWT for the paper is \$96.90. Find the following:

up:

Press sheet size:

Parent sheet size to buy:

press sheets out of each parent sheet:

% of parent sheet to be wasted:

parent sheets to buy:

M weight of parent sheet size:

Total weight of parent sheets to buy:

Total cost of parent sheets to buy:

- 36: A customer orders 12000 copies of an 9 X 12" flier to be printed on 60# book paper. The paper company sells the required paper in 17 1/2 X 22 1/2, 19 X 25, 23 X 29, 25 X 38 and 38 X 50. You have a 19 X 25" press. The CWT for the paper is \$102.50. Find the following:

up:

Press sheet size:

Parent sheet size to buy:

press sheets out of each parent sheet:

% of parent sheet to be wasted:

parent sheets to buy:

M weight of parent sheet size:

Total weight of parent sheets to buy:

Total cost of parent sheets to buy:

Chapter 15, Materials, Chemicals and Supplies

- 37: A customer orders 6200 copies of an 5 1/2 X 8 1/2" flier to be printed on 60# book paper. The paper company sells the required paper in 17 1/2 X 22 1/2, 19 X 25, 23 X 29, 25 X 38 and 38 X 50. You have a 19 X 25" press. The CWT for the paper is \$102.50. Find the following:

up:

Press sheet size:

Parent sheet size to buy:

press sheets out of each parent sheet:

% of parent sheet to be wasted:

parent sheets to buy:

M weight of parent sheet size:

Total weight of parent sheets to buy:

Total cost of parent sheets to buy:

- 38: A customer orders 20000 copies of an 8 1/2 X 11" flier to be printed on 50# book paper. The paper company sells the required paper in 17 1/2 X 22 1/2, 19 X 25, 23 X 29, 23 X 35, 25 X 38 and 38 X 50. You have a 28 X 40" press. The CWT for the paper is \$102.50. Find the following:

up:

Press sheet size:

Parent sheet size to buy:

press sheets out of each parent sheet:

% of parent sheet to be wasted:

parent sheets to buy:

M weight of parent sheet size:

Total weight of parent sheets to buy:

Total cost of parent sheets to buy:

Chapter 15, Materials, Chemicals and Supplies

39: Assume that you would like to change to color of an ink. Which of the ink's ingredients would you change?

40: Why are ink manufacturers changing from petroleum- to soya-based vehicles?

41: If you wanted to change the drying characteristics, smell or scuff resistance of an ink, which of the three main ingredients would be involved?

43: Give me an example of a use for ink that would require it to be transparent.

44: Which printing process would be most likely to use opaque inks?

45: Give me an example for the use of an opaque ink when using the offset-lithographic printing process.

46: Which printing process would demand the use of an ink with a thin "body"?

47: Most lithographic presses require inks that have high "body" in the ink fountain but thin out when "worked" by the press' rollers. What is the ability to change from thick to thin called?

48: Describe how you would test an ink's "length."

Chapter 15, Materials, Chemicals and Supplies

49: How do ink makers test the "tack" of the ink?

_____ Which ink is "tackier," one with a number of "16" or another with "10."

50: Explain how making a peanut butter and jam sandwich relates to "wet-trapping" of ink on a multi-color press.

51: Why is it necessary for inks dried by evaporation on a web-offset press to be passed through "chill-rollers?"

52: Briefly describe how most sheet-fed offset inks dry (be sure to name the process(es) they use to dry).

53: Some inks don't really dry. Instead they "gel." What kind of offset inks "gel?"

54: Give an example of a use for a "permanent" ink.

Chapter 15, Materials, Chemicals and Supplies

55: Give an example for the use of a "resistant" ink.

56: Ink is made of three classifications of ingredients. These are:

_____, _____, and _____. The ingredients are placed into a vat and mixed with a _____. Then, the mixed ingredients are poured onto a _____. This machine _____ the ink. It consists of _____ rollers, each turning different speeds. The longer the ink is left on this machine, the higher its _____.

57: What is the difference between "wet-" and "dry-trapping?"

58: People are often very concerned about the color of the image on their printed jobs. In order to match the customer's desired color(s), printers often use the _____. When using this system, the printer must have _____ basic colors of ink, a _____ and some _____. The correct color of ink is found in the _____ and the formula copied down. Mixing the correct amounts of each of the formula's basic colors results in the desired color.

59: What is a *dispenser* and how is it used in ink making?

Chapter 15, Materials, Chemicals and Supplies

60: What is an ink *mill*. Draw a picture then describe how milling affects the quality of the ink.

Chapter 16, Blankets

1: If you are printing on a very rough piece of paper, what hardness of blanket would be preferable?

2: An offset lithographic press wouldn't be an *offset* press unless it had a _____.

3: How can you tell the *warp* direction of the blanket?

Of what significance is the warp direction when installing a blanket?

4: Match the performance requirement of a blanket in the left column with the definition in the right column.

_____1: Release

A: ability to withstand the pressure, tension, and physical abuse of the press

_____2: Resilience

B: the readiness of the blanket to give up the paper after it leaves the printing nip

_____3: Durability

C: the roughness of the blanket's surface

_____4: Smoothness

D: ability to resist swelling when washed

_____5: Solvent Resistance

E: the ability of a blanket to return to its original thickness after being compressed

_____6: Stretch Resistance

F: the ability to resist elongation

Chapter 16, Blankets

5: Which of the following is *not* true regarding the impact of blanket smoothness?

- A: rougher blankets release better
- B: rougher blankets help remove excess water from the plate
- C: smoother blankets give the best ink fidelity
- D: rougher blankets are easier to clean than smooth blankets

6: What is the major difference in the action of a conventional blanket and a compressible blanket at the nip?

—

—

7: Which of the following statements related to compressible blankets is *not* true?

- A: compressible blankets provide wider packing latitude than conventional blankets
- B: compressible blankets increase deformation of the dot at the printing nip as compared to conventional blankets
- C: compressible blankets result in longer plate life than conventional blankets
- D: compressible blankets are more resistant to smashing than conventional blankets

8: Which of the following statements related to self-adhesive blankets is *not* true?

- A: self-adhesive blankets need no packing
- B: self-adhesive blankets are most often used on web-fed presses
- C: self-adhesive blankets are very difficult to remove from the cylinder
- D: self adhesive blankets are usually very thick

9: Why is it difficult to measure the hardness of a blanket?

—

—

10: T F Blankets should be wide enough to run from gutter to gutter, but not cover the bearers.

Chapter 16, Blankets

11: Which of the following statements related to blanket storage *is* true?

- A: The preferred method of storing blankets is rolled-up and stored vertically in a tube.
- B: If stored flat, blankets should be stacked rubber-to-fabric.
- C: Blankets should be stored in a well-lit location.
- D: All the above are true.

12: Give two reasons that blanket-wash solvent should dry rapidly.

13: Why does a proper blanket cleaning require both solvent- and water-based cleaners?

14: What is meant by blanket *reconditioning*? How can a blanket be reconditioned?

15: Why must a blanket's lead edge be cut exactly perpendicular to the warp direction?

16: Why is it important to have several blankets, mounted to blanket bars, prepared in advance?

Chapter 16, Blankets

17: Give the proper procedure for determining the proper torque-wrench setting for blanket tightness.

18: Of what use is a non-repairable blanket?

19: When choosing a blanket wash, what should you test?

Chapter 17, Troubleshooting Press Problems

1: MATCHING: Write the letter of the correct answer on the line preceding the question. Answers may be used more than once. Write CAPITAL LETTERS ONLY. All questions concerning press troubleshooting.

- | | |
|---|-------------------------------------|
| _____ 1: Good Copy | A: Too much ink, too much water |
| _____ 2: Plugging-up or filling-in | B: Too much ink, water OK |
| _____ 3: Ink-in-water emulsification | C: Too much ink, too little water |
| _____ 4: Water-in-ink emulsification | D: OK ink, OK water |
| _____ 5: Image is too light, but it's solid | E: Too little ink, too much water |
| _____ 6: Plate image deteriorates | F: Too little ink, OK water |
| _____ 7: Ink doesn't dry quick enough | G: Too little ink, too little water |
| _____ 8: Tinting | H: pH of fountain solution too high |
| _____ 9: Roller stripping | I: pH of fountain solution too low |
| _____ 10: Ink spraying | J: Dirty dampeners |
| _____ 11: Areas where the image is missing on the blanket | K: Smashed blanket |
| | L: Dried gum (glaze) on ink rollers |
| | M: None of the above |

2: Give two examples of people problems concerning the use of paper in the pressroom.

3: _____ consists of bits of coating that are just barely stuck to the paper. In order to remedy this problem, you must: _____

4: _____ occurs when the paper is well made, but the tack of the ink rips fibers out of the paper. List three ways to solve this problem.

Chapter 17, Troubleshooting Press Problems

5: _____ occurs when the ink becomes too short to transfer from roller to roller or blanket to paper. Give two ways to solve this problem.

6: Describe what will happen to paper if the rH of the paper is 50% and the rH of the pressroom is 75%.

7: Moisture will form on the outside of a glass of cold soda during the summer. What lesson does this simple fact give the printer concerning the proper handling of paper?

8: If you printed a black solid on this piece of paper, how would the solid look? _____

What is this called? _____

Why does it happen? _____

Would the same thing happen if this test were printed on coated paper? _____

9: What is the best way to prevent static? _____

10: What if we can't prevent the static? How can we get rid of it? List two ways.

1. _____

2. _____

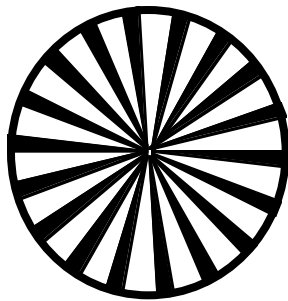
Chapter 17, Troubleshooting Press Problems

- 11: What do you have to be careful of when stripping and setting up the press for a small card or envelope job? _____
- 12: If the sheet is molded by the pull of the ink tack in combination with the impression squeeze in a solid area at the end of the sheet, it is called: _____.
- 13: Assume a skid of paper was stored in a warehouse in which the temperature was 40° F. and it is brought into a pressroom which is heated to 72° F. What exactly should the printer do in order to prevent problems with rH? (hint: there are at least 2 things)
- _____
- _____
- _____
- _____
- _____
- _____
- 14: One of the problems we have is the fact that problems with an image on the press-sheet can often be produced by more than one cause. List three or more causes for an image that appears "too light" on the press sheet.
- _____
- _____
- _____
- _____
- _____
- _____
- 15: I told you a story about an old press-operator I know who spits in his fountain solution in order to make the image print cleaner. Why does it work?
- _____
- _____
- _____
- _____
- _____

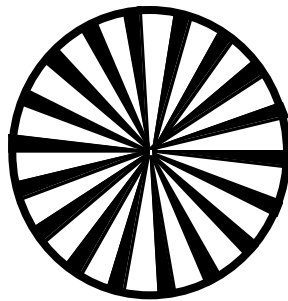
Chapter 17, Troubleshooting Press Problems

16: What are the four steps that should be followed when trouble-shooting press problems?

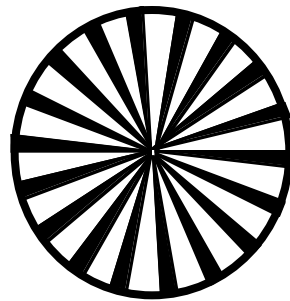
17: Alter the three star targets to simulate the press problem listed below each target.



Dot Gain



Slur



Doubling

19: Tell me something that could go wrong if the paper is placed in the press-feeder with the grain direction going the wrong way.

20: Assume that a press-operator is going to print a job on NCR paper. What would he do differently if he printed the job on a Davidson as compared to a Chief?

21: What must the press-operator be careful of when running paper that has a watermark?

Chapter 17, Troubleshooting Press Problems

22: Draw a labeled sketch of each of the four types of NCR paper below. Draw one in each box.

--	--	--	--

(Name)

(Name)

(Name)

(Name)

23: What is the difference between calender scale and loose dust?

24: Give me an example of something that has a long length.

25: Give me an example of something that has a short length.

26: Give me an example of something with high tack.

27: What causes picking?

28: What is the best way to eliminate picking?

29: How can you tell if the paper is dusting?

Chapter 17, Troubleshooting Press Problems

30: What is piling?

31: How can you prevent cracking?

32: If you are going to print pre-collated NCR paper on one side only on a Davidson press, what type of NCR do you need?

How would you load the feeder?

What type of NCR would you need if you printed the same job on a Chief?

33: If you printed a solid layer of black ink on this sheet of paper, what would it look like?

What is this phenomenon called?

What causes it?

34: What is special about an envelope feeder?

35: What can you do to make it possible to feed paper that is curled?

36: What would you do to eliminate tail-end hook?

Chapter 17, Troubleshooting Press Problems

37: If you are going to print a small-sized card on a Multilith press, what must be done special with the flat so that the sheet will be printed?

38: Assume you want to print a job with close register and the rH is 57%. What will happen?

39: What tool is used to measure the rH of the paper on the inside of the stack of paper?

40: If you want to prevent static, you must control the rH. What is the minimum rH that will prevent static from occurring?

41: What could happen to NCR paper if you print it with too much impression-cylinder to blanket-cylinder pressure?

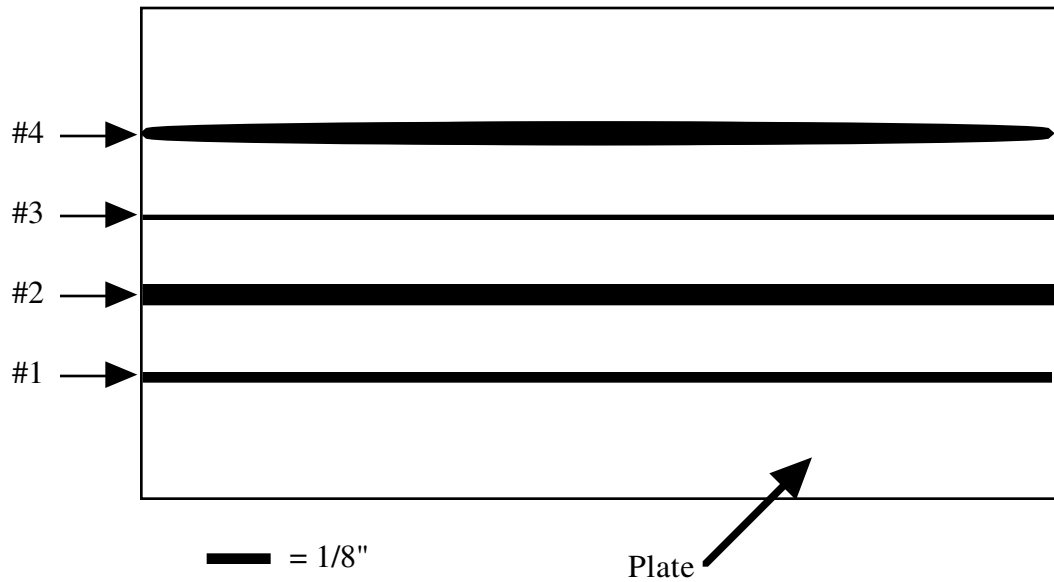
42: Set-off is worst when using what kind of paper?

43: If a sheet of paper flies out of the delivery of a Multilith duplicator (instead of going into the pile where it belongs), what is most likely the cause?

44: What could cause a delivered sheet to have "gripper bite?"

Chapter 18, Press Maintenance

- 1: The illustration below represents a plate with four ink-form to plate stripes. Each stripe is labelled with the name of the form roller that produced it. Form #1 is 1/8" wide. Answer the questions beneath the illustration.



Describe what should be done with roller #1

Describe what should be done with roller #2

Describe what should be done with roller #3

Describe what should be done with roller #4

Chapter 19, Color bars

1: Describe the process for taking density readings for a given color on a press sheet.

2: Describe the process for using our Macbeth hand-held densitometer for determining dot gain.

3: To calculate hue error, you must make three readings with the densitometer on a given solid color patch using _____, _____, and _____ filters. You will then have three readings, high, medium, and low. Then use the following formula to calculate the hue error (*write in formula below*).

4: Describe the method to use our Macbeth hand-held densitometer to measure percent trap.

Wet trap seldom exceeds _____, while _____ – _____ percent is common. Less than _____ is unacceptable.

5: The higher the _____ number, the farther a process ink is from its ideal hue.

Chapter 19, Color bars

- 6: Assume you are printing an ideal cyan ink and are taking density readings with red, green, and blue filters to calculate hue error. Give examples of density readings you would expect to find with each of the filters (*Note: it is more important that your answers show the correct relationship between filters than be actual density numbers*).

Red: _____; Green: _____; Blue: _____

Now give examples of more realistic readings that you might expect to find using real cyan ink.

Red: _____; Green: _____; Blue: _____

- 7: Assume that you have taken density readings of a particular solid process color ink patch with red, green, and blue filters and have high, medium, and low density numbers recorded. How would you use these numbers to calculate grayness? (Show formula in the space below.)

The lower the grayness of a process color, the higher its _____. The higher the grayness of a process color, the higher its _____.

- 8: Explain how the GATF color patches can be used to determine if the press sheet contains slur.

- 9: Explain how the GATF color patches can be used to determine if the press sheet contains doubling.

- 10: How would you measure the density range of a press sheet?

Chapter 19, Color bars

11: Explain how you would check image registration.

Chapter 20, Bindery

- 1: Calculate how many 8 1/2 X 11 press sheets you can get out of a 25 X 38 parent sheet. Then, in the box below, draw a cutting layout for the problem.



- 2: If you had to trim a lot of books on all three sides, which special feature of the paper cutter would help you do the job a lot faster? _____
- 3: What is the standard spacing of holes center to center if you drill 3 holes in the paper?

- 4: Why is it important that all pads be the same thickness? _____

- 5: How do you change the distance from the edge of a drilled hole to the edge of the paper?

- 6: What is the name of the type of binding process in which the signatures are placed inside one another? _____
- 7: What binding processes allow the open book to lie flat on the table? List three.

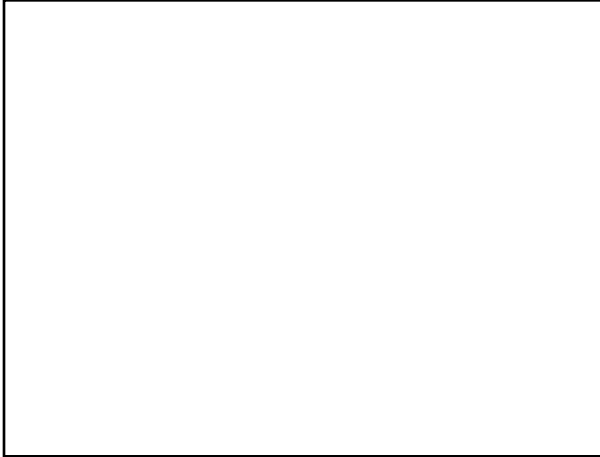
- 8: Under what circumstances would you find it necessary to speed up or slow down the speed of the folding machine's sucker wheel? _____

Chapter 20, Bindery

9: For problem #1 below, draw a cutting diagram and list the cutting schedule for 9 X 12 from 23 X 35. Don't use process cut. Draw the cutting diagram in the box. List the cutting schedule on the lines next to the box.

For problem #2 below, draw a cutting diagram and list the cutting schedule for 9 X 12 from 25 X 38. USE PROCESS CUT. Draw the cutting diagram in box #2 and list the cutting schedule on the lines next to it.

1.



List cutting Schedule:

1. _____
2. _____
3. _____
4. _____
5. _____

2.



List Cutting Schedule

1. _____
2. _____
3. _____
4. _____
5. _____
6. _____
7. _____
8. _____

Chapter 20, Bindery

10: Which of the following can result in potential problems in the binding/finishing area?

- A: Neglecting to build in creep or thrust
- B: Failure to build in proper bleeds
- C: Errors in pagination
- D: all the above

11: Explain why binding and finishing are labor-intensive tasks.

12: Which of the following terms describes use of a paper cutter to cut down parent sheets to press sheets and/or press sheets to finished sheets?

- A: trimming
- B: jogging
- C: cutting
- D: guillotining

13: Which of the following is a labor-saving device applicable to paper cutters?

- A: lifts to raise heavy paper to cutter-bed level
- B: joggers
- C: cutter beds equipped with air blasts
- D: all of the above

14: Which of the following terms describes use of a paper cutter to remove the edges from folded sheets?

- A: trimming
- B: jogging
- C: cutting
- D: guillotining

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15: Why are complicated folding jobs--such as those found in children's pop-up books--folded by hand in third-world countries?

16: Sketch a parallel fold.

17: Which of the following types of terms best describes the folder we have in our laboratory?

- A: knife
- B: Baum
- C: buckle
- D: combination

18: In which type of binding are signatures placed inside one another?

- A: saddle
- B: perfect
- C: case
- D: both B and C

19: Most saddle-stitched books are trimmed by:

- A: hand
- B: guillotine paper cutter
- C: in-line autobinders

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20: The proper name for a piece of wire that holds together a saddle-bound book is:

- A: staple
- B: stitch
- C: wire

21: On which of the following binds are the binding folds NOT cut off?

- A: saddle
- B: smythe (case)
- C: perfect
- D: both A and B

22: Which of the following is true?

- A: Slitting, folding, and cutting can be done in-line on a web press.
- B: Perfing and scoring can be done in-line with a web or sheetfed press.
- C: Numbering and imprinting can be done in-line with a web press.
- D: A saddle binder (auto binder) has an in-line combination of automatic insertes, saddle stitchers, trimmers, addressing, and mailing units.
- E: All of the above are true.

23: How does binding differ from finishing?

24: To what degree should paper cutters be sharpened if the material to be cut consists of bond and book papers.

- A: 22°
- B: 24°
- C: 45°
- D: 90°

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- 25: Which of the following cutter blades would--under normal use--last the longest?
- A: Steel
 - B: High-speed tool steel
 - C: Carbide insert
- 26: Which of the following is true regarding paper cutter blade sharpening?
- A: Cutting hard materials requires more frequent sharpening than soft materials.
 - B: Blades get shorter every time they are used.
 - C: Sharper blades increase the smoothness and quality of cuts.
 - D: All the above are true.
- 27: If the friction caused by the knife cutting through the stack of paper causes the paper to move away from the back gauge,
- A: increase the clamp pressure
 - B: cutter smaller stacks of paper
 - C: sharpen the knife
 - D: All the above are true.
- 28: Assume a stack of 19 X 25 paper is going to be cut to 8 1/2 X 11 sheets. Draw a cutting diagram and list the cutting schedule from longest to shortest.
- 29: What two types of folds are generally combined to make a traditional 8-page signature?
-

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- 30: The three-page trim of books and brochure blocks after block binding is referred to as:
- A: paper cutting
 - B: cutting webs
 - C: trimming
 - D: cutting case material to size
- 31: Which of the following best describes the "knife cut principle" of cutting?
- A: the knife cuts against a surface plane, which supports the cutting force
 - B: the upper knife works against a lower knife--the material is sheared off against the lower knife
 - C: the knife works without a counter-acting tool
 - D: the cut takes place during the movement of the web
- 32: Which of the following components of a cutting line aligns sheets in the pile?
- A: pile lift
 - B: jogger
 - C: guillotine
 - D: unloader
- 33: T F Longitudinal cutting of webs results in two or more ribbons of paper.
- 34: Which of the following is NOT true regarding the crosscutting of webs:
- A: crosscuts may be done by a simple cross cutter
 - B: crosscuts may be done by a circular knife
 - C: crosscuts may be done by a rotary cross cutter
 - D: crosscutting takes place perpendicular to the web surface

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- 35: In contrast to cutting and trimming, where the material is cut in a straight line, _____ is a process in which materials are cut in a specific pattern.
- A: longitudinal web cutting
 - B: angle cutting
 - C: burst cutting
 - D: die cutting
- 36: _____ is the sharp-edged bending of paper webs or sheets under pressure at a prepared or unprepared bending point along a straight line.
- A: die cutting
 - B: longitudinal slitting
 - C: folding
 - D: perforating
- 37: Which of the following is not true regarding the buckle fold principle?
- A: the sheet is transported through upper and lower folding rollers into a buckle plate until it stops at the buckle stop
 - B: the sheet is fed between the folding knife and the folding roller
 - C: the space saving, compact design of these folders allows a series of folding units to be added to the machine
 - D: machines based on the buckle fold principle provide more flexibility than those based on the knife principle.
- 38: Which of the following can be performed on folding production lines?
- A: complicated adhesive binding using various glues for different tasks
 - B: gather sheet sections and finish them together
 - C: personalize products using ink jet or electrophotographic imprinting units
 - D: all of the above
- 39: T F On folding machines, the rotary pile feeder is frequently used for medium to long runs.