

TEST BOOKLET
BOC 2013 – Mastering Electric Control Circuits
Ed. 1.00

EXAM INSTRUCTIONS

A period of 1 hour is available for the exam, but it will not be strictly timed. This is an open book exam. You may use any notes or handout materials of your own. Mark all answers *only* on the ANSWER SHEET. Make *no marks* in the TEST BOOKLET.

For true or false questions, make your choice by circling the corresponding letter on the ANSWER SHEET: “A” for True or “B” for False.

For multiple choice questions, *make only one choice* by circling the corresponding letter on the ANSWER SHEET. Where it appears that two answers may be correct, choose the one *better* answer. There are no questions that require the circling of more than one choice.

Below are some sample questions:

Example #1: Because of individual differences (such as different clothing, activity levels and personal tolerance), people will not always agree that 70° F is a comfortable temperature.

- A. True
- B. False

The correct answer is “True.” Drawing a circle around the letter “A” on the Answer Sheet should mark your choice.

(Note: While 70° F is a standard set point for heating comfort, there is a wide range of response to specific temperatures, and 70° F may not satisfy individual with less clothing and a sedentary condition. Other individuals with more active jobs may too warm at 70°.)

Example #2: In the past, asbestos fibers were commonly used as the primary fiber in numerous building materials. For which of the following was asbestos used as the primary fiber?

- A. Pipe Insulation
- B. Furnishings
- C. Window coverings, such as drapes
- D. All of the above.
- E. None of the above.

While all three could have contained asbestos, it would have been commonly used as the primary fiber in only one of these--pipe insulation. Drawing a circle around letter “A” on the ANSWER SHEET should mark the answer.

(Note: In the preceding example question, only pipe insulation was included as a material that commonly contained asbestos as the primary fiber. That does not mean that only pipe insulation contained asbestos.)

It should be understood that the items covered in this examination have been chosen to "sample" the operator's knowledge.

BEGINNING OF TEST

Mark all answers on *only* the ANSWER SHEET. Make *no* marks in the TEST BOOKLET.

- 1. Which of the following individuals should install wiring?**
 - A. A building operator instructor
 - B. A mechanical engineer
 - C. Qualified electrical personnel
 - D. All of the above.

- 2. A single insulated wire wrapped around a nail, each end connected to a battery will cause what?**
 - A. Make the nail magnetic
 - B. Make electrons flow in the wire
 - C. Drain power from the battery
 - D. All of the above.

- 3. If four relays with a resistance of 25 ohms where connected in series what would be the total measured resistance?**
 - A. 100 ohms
 - B. 75 ohms
 - C. 50 ohms
 - D. 25 ohms.

- 4. An electrical drawing laid out as the system physically exists is called what?**
 - A. Ladder logic
 - B. Wiring diagram
 - C. Sequence of operation
 - D. All of the above.

- 5. Where can a 3-wire start/stop circuit most often be found?**
 - A. line circuit
 - B. neutral circuit
 - C. control circuit
 - D. ground circuit.

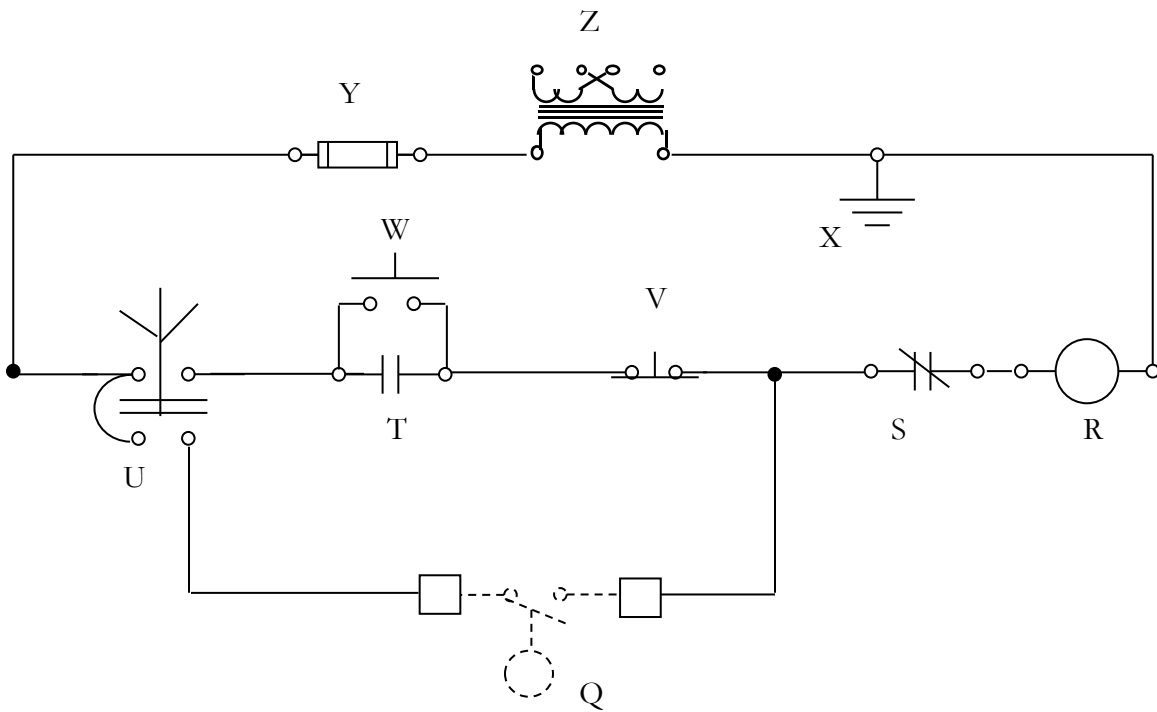
6. In the ladder diagram below, which is the stop button?

- A. R
- B. V
- C. Q
- D. X

7. In the ladder diagram below, which is the relay coil?

- A. W
- B. Z
- C. Y
- D. R

LADDER DIAGRAM



- 8. Normally open or normally closed is determined when**
- A. normal becomes the average.
 - B. force is applied.
 - C. at rest.
 - D. None of the above.
- 9. A three position selector can be used as**
- A. a hand-off-auto switch.
 - B. a mechanical interlock.
 - C. a safety lockout point.
 - D. All of the above.
- 10. A combination of series and parallel circuits**
- A. is rarely used in standard control.
 - B. is often used in modern control panels.
 - C. is not considered an industry standard.
 - D. is difficult to troubleshoot and should be avoided whenever possible.

END OF TEST

Please return Test Booklet and your Answer Sheet to the administrator.