

## REVIEW

*Note:* Refer to the *Canadian Electrical Code, Part I* or the plans where necessary.

### PART 1—ELECTRICAL FEATURES

1. What does a plan show about electrical outlets? \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_
2. What is an outlet? \_\_\_\_\_  
 \_\_\_\_\_
3. Match the following switch types with the proper symbol.
 

a. single-pole	$S_p$
b. three-way	$S_4$
c. four-way	$S$
d. single-pole with pilot light	$S_3$
4. The plans show dash lines running between switches and various outlets. What do these dash lines indicate? \_\_\_\_\_  
 \_\_\_\_\_
5. Why are dash lines usually curved? \_\_\_\_\_
6. a. What are junction boxes used for? \_\_\_\_\_  
 b. Are junction boxes normally used in wiring the first floor? Explain. \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_
- c. Are junction boxes normally used to wire exposed portions of the basement? Explain.  
 \_\_\_\_\_  
 \_\_\_\_\_
7. How are standard sectional switch (device) boxes mounted? \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_
8. a. What is an offset bar hanger? \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 b. What types of boxes may be used with offset bar hangers? \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

9. What methods may be used to mount lighting fixtures to an outlet box fastened to an offset bar hanger? \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_
10. What is the purpose of a 4-inch (102-mm) octagon box? \_\_\_\_\_  
 \_\_\_\_\_
11. What is the size of the opening of a switch (device) box for a single device?  
 \_\_\_\_\_  
 \_\_\_\_\_
12. The space between a door casing and a window casing is 89 mm (3.5 in). Two switches are to be installed at this location. What problems could be encountered when placing the switches in this location? What would you recommend as a possible solution?  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_
13. Three switches are mounted in a three-gang switch (device) box. The wall plate for this assembly is called a \_\_\_\_\_ plate.
14. For each fixture stud inside a box (increase) decrease) the number of conductors allowed by one. Circle the correct answer.
15. a. How high above the finished floor are the switches located in the garage of this dwelling? \_\_\_\_\_  
 b. In the living room of this dwelling? \_\_\_\_\_
16. How high above the finished floor are the receptacle outlets in the garage located? \_\_\_\_\_  
 In the living room? \_\_\_\_\_
17. Outdoor receptacle outlets in this dwelling are located \_\_\_\_\_ mm above grade.
18. In the spaces provided, draw the correct symbol for each of the items listed below.
- |                                     |                               |
|-------------------------------------|-------------------------------|
| a. ___ Lighting panel               | j. ___ Special-purpose outlet |
| b. ___ Clock outlet                 | k. ___ Fan outlet             |
| c. ___ Duplex outlet                | l. ___ Range outlet           |
| d. ___ Outside telephone            | m. ___ Power panel            |
| e. ___ Single-pole switch           | n. ___ Three-way switch       |
| f. ___ Motor                        | o. ___ Push button            |
| g. ___ Duplex outlet, split-circuit | p. ___ Thermostat             |
| h. ___ Lampholder with pull switch  | q. ___ Electric door opener   |
| i. ___ Weatherproof outlet          | r. ___ Multioutlet assembly   |



19. The front edge of a box installed in a combustible wall must be \_\_\_\_\_ with the finished surface. Rule number? \_\_\_\_\_
20. List the maximum number of No. 12 AWG conductors permitted in a
- $4 \times 1\frac{1}{2}$ -in (102  $\times$  38-mm) octagon box. \_\_\_\_\_
  - $4\frac{11}{16} \times 1\frac{1}{2}$ -in (119  $\times$  38-mm) square box. \_\_\_\_\_
  - $3 \times 2 \times 2\frac{1}{2}$ -in (76  $\times$  51  $\times$  64-mm) device box. \_\_\_\_\_
21. When a switch (device) box is nailed to a stud, and the nail runs through the box, the nail must not interfere with the wiring space. To accomplish this, keep the nail (circle a, b, or c)
- halfway between the front and rear of the box.
  - a maximum of 6.4 mm from the front edge of the box.
  - a maximum of 6.4 mm from the rear of the box.
22. Hanging a ceiling fixture directly from a plastic outlet box is permitted only if \_\_\_\_\_
- \_\_\_\_\_
- \_\_\_\_\_
- \_\_\_\_\_
23. It is necessary to count fixture wires when counting the permitted number of conductors in a box according to *Rule 12-3036*.
- (True)    (False)    Underline or circle the correct answer.
24. *Table 23* allows a maximum of ten wires in a certain box. However, the box will have two wire connectors and one fixture stud in it. What is the maximum number of wires allowed in this box? \_\_\_\_\_
25. When laying out a job, the electrician will usually make a layout of the circuit, taking into consideration the best way to run the cables and/or conduits and how to make up the electrical connections. Doing this ahead of time, the electrician determines exactly how many conductors will be fed into each box. With experience, the electrician will probably select two or three sizes and types of boxes that will provide adequate space to "meet the code." *Table 23* of the *C.E.C., Part I* shows the maximum number of conductors permitted in a given size box. However, the number of conductors shown in the table must be reduced:
- by \_\_\_\_\_ conductor(s) for two wire connectors
- by \_\_\_\_\_ conductor(s) for the fixture stud
- by \_\_\_\_\_ conductor(s) for each wiring device mounted on a single strap
- by \_\_\_\_\_ conductor(s) for one or more bare copper bonding conductors.
26. Is it permissible to install a receptacle outlet above an electric baseboard heater?
- \_\_\_\_\_