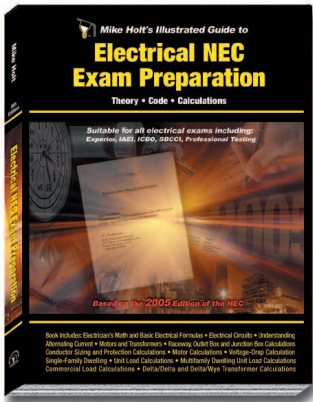


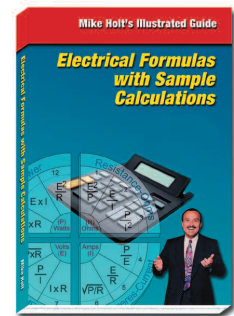


Electrical Calculations Exam (3 Hours)



Suggested Reference Books:

Mike Holt's Illustrated Guide to Electrical NEC Exam Preparation and Mike Holt's Illustrated Guide to Electrical Formulas with Sample Calculations books will be very helpful in understanding the questions contained in Part 3.



(• Indicates that 75% or fewer of those who took this exam answered the question correctly.)

Diagram 1 applies to Questions 1 through 3.

1. The resistance of R_1 is _____.

(a) 225 ohms	(b) 192 ohms
(c) 22.5 ohms	(d) 19.2 ohms

2. The current of Lamp 2 (R_2) is ____ amperes.

(a) 0.54	(b) 0.63
(c) 5.4	(d) 6.3

3. • The total power consumed of both circuits combined will be ____ watts.

(a) 300	(b) 139
(c) 278	(d) 150

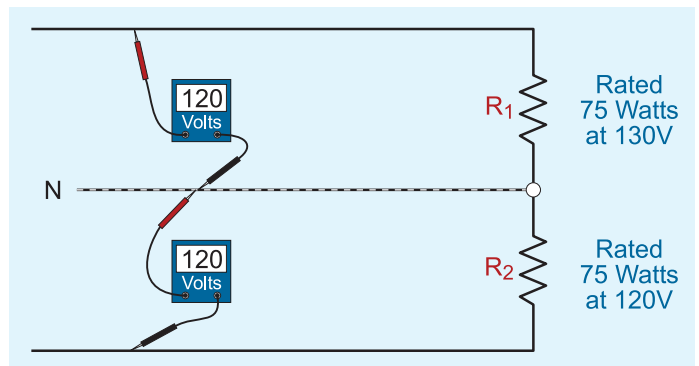


Diagram 1

Diagram 2 applies to Questions 4 and 5.

4. • If the neutral path is opened as shown in **Diagram 2**, the current of the circuit will be _____ amperes.

(a) 0.63 (b) 0.58
(c) a and b (d) 0.93

5. • If the neutral is open as shown in **Diagram 2**, what is the voltage drop across the 120V bulb?

(a) 110V (b) 115V
(c) 120V (d) 240V

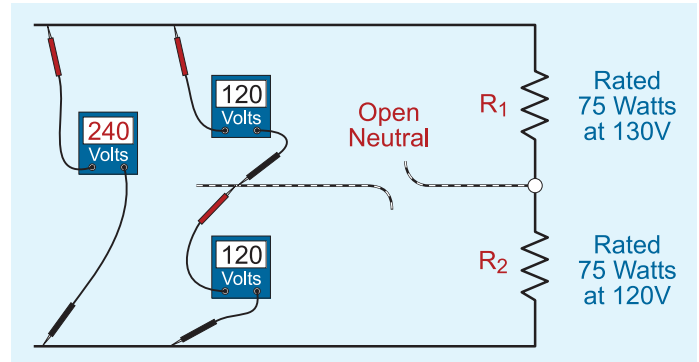


Diagram 2

6. Can a round 4 x 1/2 in. box marked as 8 cu in. with manufactured cable clamps supplied with 14/2 NM be used with a luminaire that has two 18 TFN and a canopy cover?

(a) Yes (b) No

7. What size outlet box is required for one 12/2 NM cable that terminates on a switch, one 12/3 NM cable that terminates on a receptacle, and the box has manufactured cable clamps?

(a) 4 x 1 1/4 square (b) 4 x 1 1/2 square (c) 4 x 2 1/8 square (d) none of these

8. How many 14 THHN conductors can be pulled through a 4 x 1 1/2 square box with a plaster ring of 3.6 cu in.? The box contains two duplex receptacles, five 14 THHN conductors and two equipment grounding conductors.

(a) 1 (b) 2 (c) 3 (d) 4

The following information applies to Questions 9-11: A junction box has two trade size 3 raceways entering on the left side. The conductors from one of these leave the top of the box in a trade size 3 raceway in an angle pull. The conductors from the second trade size 3 on the left wall are pulled straight through one of the trade size 2 raceways on the right. Two trade size 2 raceways enter from the right side and two trade size 3 raceways enter from the bottom. All raceways entering the bottom are angle pulls.

9. What is the distance from the left wall to the right wall?

(a) 18 in. (b) 21 in. (c) 24 in. (d) 20 in.

10. What is the distance from the bottom wall to the top wall?

(a) 18 in. (b) 21 in. (c) 24 in. (d) 15 in.

11. What is the distance between the raceways that contain the same conductors?

(a) 18 in. (b) 21 in. (c) 24 in. (d) 15 in.

12. How many 16 TFFN conductors can be installed in trade size 3/4 electrical metallic tubing?

(a) 40 (b) 26 (c) 30 (d) 29

13. How many 1/0 XHHW conductors can be installed in a trade size 2 flexible metal conduit?

(a) 7 (b) 6 (c) 16 (d) 13