

Electrical Review – Quiz Questions

RV 10.25.2011

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DO NOT BOOKMARK IN YOUR WEB BROWSER!

How to take this Course.

1. Download and print the quizzes.

2. Log in to your account using your ID and password.

3. Status page for your account appears. Click on link: “Click here to start this course.”



4. Start viewing the web pages. Refer to your printed quizzes to find the correct answers. The questions track the web pages.

5. As you find the correct answers, circle them on your printed sheet.

6. At the end of each chapter is an online quiz, which is exactly what you printed. Refer to your circled answers and click on the correct answer on the web quiz page.

7. Upon passing, you will proceed to the next chapter. If you do not pass a chapter test, you will start again at the beginning of that chapter.

Note – phone users, use it at your own risk!

Quiz 1

Question 1: An electron has a _____ charge.

- Positive
- Negative
- Neutral

Question 2: In a stable atom, the number of positively charged particles is _____ the number of negatively charged particles.

- Equal to
- Greater than
- Less than

Question 3: The positively charged particle of an element is a(n)_____.

- Atom
- Electron
- Proton
- Neutron
- None of these

Question 4: The center of the atom, the nucleus, is made up of the following:

- A. Electrons
- B. Protons
- C. Neutrons
- D. All of the above
- E. Only B and C

Question 5: The electrons in the outer shell are known as_____.

- Valance electrons
- Outer orbit electrons
- M3 level electrons
- None of the above

Question 6: Materials that easily move electrons are_____.

- atoms
- conductors
- insulators
- resistors

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all of the above

Question 7: Atoms that have received an extra electron are known as _____.

- Depleted atoms
- Charged atoms
- Overcharged atoms
- Full atoms

Question 8: If a positive and negative body are joined together by a copper wire, which of the following would happen?

- An atomic explosion
- Nothing
- Electrons would move in the wire from the negative charged body to positive charged body
- Electrons would move in a wire from the positive charged body to the negative charged body

Question 9: As the number of electrons in the outer orbit increases, the atoms change in behavior from a(n) _____ to a(n) _____.

- Conductor / insulator
- Insulator/ conductor
- No change either case

Question 10: Which of the following is NOT an insulator?

- Electrical tape
- Copper wire
- Plastic
- Dry wood
- Dry leather

Question 11: Corrosion on a terminal is not desired because it _____.

- Acts as an insulator and creates heat at the terminal.
- Discolors the wire's insulation
- Makes a system look old
- Allows too much electricity to flow.

Question 12: Like charges _____.

- repel
- attract
- have no effect on each other
- none of the above

Question 13: In which of the following ways can electricity be produced?

- Chemically (batteries)
- Thermally
- Photo-electrically
- Magnetically (mechanically generated)
- All of the above

Question 14: A dry cell has the following part(s):

- one single metal
- two metals

two metals and a paste
none of the above

Question 15: The ANODE in a battery is _____.

- Positively charged
- Negatively charged
- Neutrally charged

Question 16: The CATHODE in a battery is _____.

- Positively charged
- Negatively charged
- Neutrally charged

Question 17: A typical material used in a cathode is _____.

- Carbon black and manganese dioxide
- Charcoal and dioxin paste
- Rubber and silicon paste

Question 18: An alkaline battery would use _____ as a base.

- Alkaline
- Sulfuric acid
- Formic acid
- Potassium hydroxide

Question 19: The metal _____ is normally used for an anode.

- Iron
- Steel
- Silver
- Zinc

Question 20: Dry cells can be recharged.

- True
- False

Question 21: A wet cell uses _____ instead of a paste between the 2 plates.

- Solid
- Liquid
- Gas
- Electromagnetic sponge material

Question 22: The electrolyte in a wet cell is typically _____.

- Water
- Formic acid
- Sulfuric acid
- Potassium hydroxide

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Question 23: Which of the above symbols represents negative electrons, or cathode?

1 2 3 4 5

Question 24: Which of the above symbols represents a positive proton, or anode?

1 2 3 4 5

Question 25: Which of the above symbols represents a battery, or direct current?

1 2 3 4 5

Question 26: Magnets are surrounded with lines of force that are called flux.

True False

Question 27: Two positive magnetic poles attract each other.

True False

Question 28: The right-hand rule for electricity states that if you put your right hand on the wire with your thumb in the direction of flow, your fingers show the direction of the magnetic flux.

True False

Question 29: As the current increases in a wire,
The strength of the magnetic field increases.
The strength of the magnetic field decreases.
The strength of the magnetic field does not change.
The strength of the magnetic field is not influenced by current flow.

Question 30: If an iron bar is wrapped with a wire and electricity is flowing through the wire, the iron bar acts like a magnet.

True False

Question 31: Reversing the direction of electrical flow in an electromagnet DOES NOT reverse the N S poles of the electromagnet.

True False

Question 32: A coil of wires wrapped around a metal plunger is called a_____.

Haploid

Diploid

Semiotic

Solenoid

Question 33: When a coil of wires wrapped around a metal plunger is energized, the coil of wires acts like a_____.

Magnet

Resistance heater

RF coil

None of the above

Question 34: When a wire is moved through a magnetic field, electricity flows in the wire.

True False

Question 35: The flow of AC electricity changes direction during a cycle.

True False

Question 36: In generating electricity, an armature coil is needed. The armature coil is_____.

A rotating loop of wire

A stationary loop of wire

A rotating magnet

A stationary magnet

Question 37: The maximum voltage generated is found at _____ degrees in the position of the armature vs. the magnetic poles.

Zero 45 66 90 180

Question 38: Voltage measured in a home is about 70% of the peak voltage that is generated.

True False

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Quiz 2:

Question 1: Which of the following is not a basic part of an electric circuit?

- Fuse
- Source of Power
- Load
- Switch
- Conductors

Question 2: Electricity can be understood by comparing electricity with an hydraulic system. Amps are similar to_____.

- pressure in psig
- flow in gpm
- pressure loss
- a control valve

Question 3: Electricity can be understood by comparing electricity with an hydraulic system. Ohms in the system are similar to_____.

- pressure in psig
- flow in gpm
- pressure loss
- a control valve

Question 4: Electricity can be understood by comparing electricity with an hydraulic system. Power voltage is similar to_____.

- pressure in psig
- flow in gpm
- pressure loss
- a control valve

Question 5: Electricity can be understood by comparing electricity with an hydraulic system. An electrical switch is similar to_____.

- pressure in psig
- flow in gpm
- pressure loss
- a control valve

Question 6: The units used to measure resistance are _____.

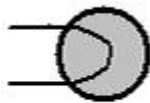
- ohms
- volts
- amps



1



2



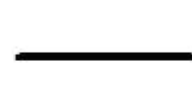
3



4



5



6

Question 7: Which of these symbols represents OHMS?

- 1
- 2
- 3
- 4
- 5

Question 8: Which of these symbols represents a MOTOR?

- 1
- 2
- 3
- 4
- 5

Question 9: Which of these symbols represents a RESISTANCE HEATER?

- 1
- 2
- 3
- 4
- 5

Question 10: Which of these symbols represents a LIGHT?

- 1
- 2
- 3
- 4
- 5

Question 11: Which of these symbols represents a SOLENOID COIL?

- 1
- 2
- 3
- 4
- 5

Question 12: Which of these symbols represents an ELECTRICAL LINE?

- 2
- 3
- 4
- 5
- 6

Question 13: Which wire is the largest in diameter?
8 ga 10 ga 12 ga 16 ga 20 ga

Question 14: By increasing the diameter of a wire, more electrons, increased amps, can flow without the buildup of heat.

- True
- False

Question 15: Which table should be used to determine the ampacities that a wire can safely carry?
103 130 210 310 315

Question 16: The table mentioned in question 15 is found in which of the following texts?
2008 NEC 2006 UPC 2006 IBC
WAC Chapter 54

Question 17: When selecting a wire size and finding that the amp load is between 2 sizes of wire, the electrician should always select_____.
The smaller size since it is cheaper
The smaller size since it is easier to handle

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The smaller size since it weighs less
The larger size, since it is required by code

Question 18: NEC 310.16 Electrical tables, indicate that a 12-gauge wire should be able to carry 25 amps. Field practice limits the amperage to _____ amps.
30 25 20 15

Question 19: Using the wire-sizing table shown on page 63 of the internet course, what size wire should be selected for 35 amps if no de-rating factors are applied?
6 8 10 12

Question 20: Using the wire-sizing table shown on page 63 of the internet course, what size wire should be selected for 30 amps if no de-rating factors are applied?
12 10 8 6

Question 21: Using the wire-sizing table shown on page 63 of the internet course, what size wire should be selected for 50 amps if no de-rating factors are applied?
12 10 8 6

Question 22: Using the wire-sizing table shown on page 63 of the internet course, what size wire should be selected for 45 amps if no de-rating factors are applied?
12 10 8 6

Question 23: Using the wire-sizing table shown on page 63 of the internet course, what size wire should be selected for 28 amps if no de-rating factors are applied?
12 10 8 6

Question 24: As more wires are bundled together, the heat generated by the wires cannot be dissipated. Therefore, the wires can carry _____ the original design ampere load.
more than less than the same as

Question 25: Using Table 310.15.B at the end of this study guide or the table on page 77 of the course, what is the adjustment factor (____ %) for 5 current-carrying wires in a bundle?
100 80 70 50 40

Question 26: Using Table 310.15.B at the end of this study guide or the table on page 77 of the course, what is the adjustment factor (____ %) for 15 current-carrying wires in a bundle?
100 80 70 50 40

Question 27: Using Table 310.15.B at the end of this study guide or the table on page 77 of the course,

what is the adjustment factor (____ %) for 3 current-carrying wires in a bundle?
100 80 70 50 40

Question 28: By definition, a continuous load is _____ hours or more of continuous operation.
1 2 3 6 24

Question 29: In sizing conductor wires, a load must be multiplied by _____ % if it is found to be a continuous load.
100 125 150 175 200

Question 30: Wire is in an ambient location of 85 deg F. What is the temperature adjustment factor? (See Table 310.16.DE-RATING for Ambient Temps found at the end of this guide, 140 F column.)
1.08 1.00 0.91 0.82 0.71

Question 31: Wire is in an ambient location of 110 deg F. What is the temperature adjustment factor? (See Table 310.16.DE-RATING for Ambient Temps found at the end of this guide, 140 F column.)
1.08 1.00 0.91 0.82 0.71

Question 32: Wire is in an ambient location of 125 deg F. What is the temperature adjustment factor? (See Table 310.16.DE-RATING for Ambient Temps found at the end of this guide, 140 F column.)
0.91 0.82 0.71 0.58 0.41

Question 33: What is the minimum sized wire for a 20 amp load for the following conditions: continuous load, 5 wires in the bundle, 110deg F.(Refer to Table 310.15.B & 310.16 at the end of the study guide.)
6 ga 8 ga 10 ga 12 ga 14 ga

Question 34: What is the minimum sized wire for a 30 amp load for the following conditions: non-continuous load, 7 wires in the bundle, 120deg F. (Refer to Tables 310.15.B & 310.16 at the end of the study guide.)
1/0 3 ga 4 ga 6 ga 8 ga

Question 35: What is the minimum sized wire for a 40 amp load for the following conditions: continuous load, 3 wires in the bundle, 125 deg F.(Refer to Tables 310.15.B & 310.16 at the end of the study guide.)
1/0 3 ga 4 ga 6 ga 8 ga

Question 36: A standard plug fuse will fit in an S type fuse holder.
True False

Question 37: A standard plug fuse can be reset.
True False

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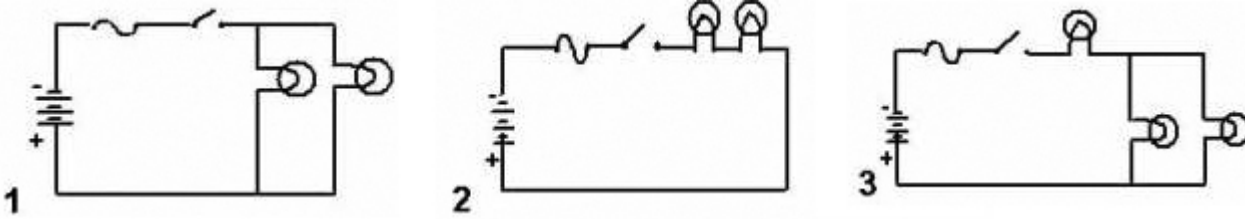
Question 38: Circuit breakers are interchangeable between manufacturers.

True False

Question 39: The common rating of a circuit breaker is in _____.

volts ohms arch corona rating amps dielectric strength

Quiz 3.



Question 1: A series/parallel circuit is represented by illustration _____.

1 2 3

step down voltage
both step up and step down voltage

Question 2: A parallel circuit is represented by illustration _____.

1 2 3

Question 6: Voltage is transferred from one side of the transformer to the other side by a process called _____.

introduction
transmutation
attraction
theokanises
induction

Question 3: A series circuit is represented by illustration _____.

1 2 3

Question 4: A transformer can produce _____.

AC voltage
DC voltage
both AC and DC

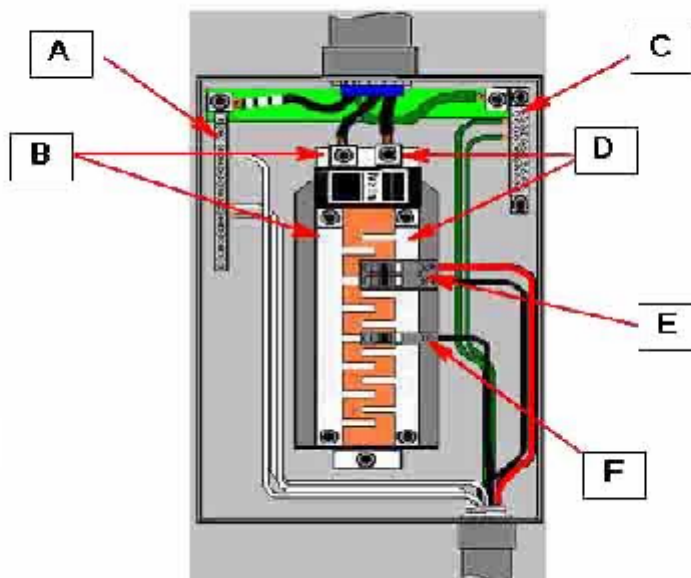
Question 7: The major proven problem with the transmission of voltages over long distances is _____.

Transmission lines overheating
Resistance in the wire and resulting voltage drops
Obtaining right of way for access
Magnetic flux lines causing cancer
Vulnerability to terrorist attacks

Question 5: A transformer can _____.

step up voltage

Power Distribution In Residential / Commercial



Question 8: The ground buss bar is labeled _____.

A B C D E

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Question 9: The L1 buss bar is labeled _____.
A B C D E

Question 10: The 120 v breaker is labeled _____.
A B C D F

Question 11: The L2 buss bar is labeled _____.
A B C D E

Question 12: The neutral bus bar is labeled _____.
A B C D E

Question 13: Water heaters with a rated circuit load in excess of 3,500 watts at 208 volts must have wire no smaller than ____ AWG.
6 8 10 12 14

Question 14: When testing continuity (resistance) your meter should be set to _____.
ohms volts watts amps none of the above

Question 15: On a resistance test, when the probes of your meter are touching each other, you should read _____, and when the probes are separated by an air space, you should read _____.
O.L., 0 or close to it
14 ohms, O.L.
0, over 250
0 or close to it, O.L.
less than 100, more than 1000

Question 16: If work is required on electrical equipment that has a fused disconnect box, what is the first thing that should be done?
Protect yourself and put the key to the lockout in your pocket.
Turn the disconnect connecting arm or lever to the off position.
Check with a voltage pen to verify that power is off.
Secure power to the electrical circuit by locking out the breaker or disconnect box.
Remove the fuses from the disconnect box.

Question 17: If work is required on electrical equipment that has a fused disconnect box, what is the second thing that should be done?
Protect yourself and put the key to the lockout in your pocket.
Turn the disconnect connecting arm or lever to the off position.
Check with a voltage pen to verify that power is off.
Secure power to the electrical circuit by locking out the breaker or disconnect box.
Remove the fuses from the disconnect box.

Question 18: If work is required on electrical equipment that has a fused disconnect box, what is the third thing that should be done?
Protect yourself and put the key to the lockout in your pocket.
Turn the disconnect connecting arm or lever to the off position.
Check with a voltage pen to verify that power is off.
Secure power to the electrical circuit by locking out the breaker or disconnect box.
Remove the fuses from the disconnect box.

Question 19: If work is required on electrical equipment that has a fused disconnect box, what is the fourth thing that should be done?
Protect yourself and put the key to the lockout in your pocket.
Turn the disconnect connecting arm or lever to the off position.
Check with a voltage pen to verify that power is off.
Secure power to the electrical circuit by locking out the breaker or disconnect box.
Remove the fuses from the disconnect box.

Question 20: If work is required on electrical equipment that has a fused disconnect box, what is the last thing that should be done?
Protect yourself and put the key to the lockout in your pocket.
Turn the disconnect connecting arm or lever to the off position.
Check with a voltage pen to verify that power is off.
Secure power to the electrical circuit by locking out the breaker or disconnect box.
Remove the fuses from the disconnect box.

Question 21: What is the first step in rescuing a person?
Use a non-conducting wooden broom handle to move the electrical wire from the victim.
Find breaker and disconnect and turn off power. If you cannot find the breaker/disconnect, proceed
If victim is unconscious, apply first aid and CPR. Call 911 for medical attention.
Cover the victim and keep the victim warm until rescue paramedics get there.

Question 22: What is the second step in rescuing a person?
Use a non-conducting wooden broom handle to move the electrical wire from the victim.
Find breaker and disconnect and turn off power. If you cannot find the breaker/disconnect, proceed
breaker/disconnect, proceed
If victim is unconscious, apply first aid and CPR. Call 911 for medical attention.
Cover the victim and keep the victim warm until rescue paramedics get there.

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Question 23: What is the third step in rescuing a person?
 Use a non-conducting wooden broom handle to move the electrical wire from the victim.
 Find breaker and disconnect and turn off power. If you cannot find the breaker/disconnect, proceed
 If victim is unconscious, apply first aid and CPR. Call 911 for medical attention.
 Cover the victim and keep warm until rescue paramedics get there.

Question 24: What is the fourth step in rescuing a person?
 Use a non-conducting wooden broom handle to move the electrical wire from the victim.
 Find breaker and disconnect and turn off power. If you cannot find the breaker/disconnect, proceed
 If victim is unconscious, apply first aid and CPR. Call 911 for medical attention.
 Cover the victim and keep the victim warm until rescue paramedics get there.

Table 310.16 DE-RATING FOR AMBIENT TEMPERATURES			
SAMPLE TABLE			
AMBIENT TEMPERATURE	60° C (140° F)	75° C (167° F)	90° C (194° F)
	Types TW, UF	Types RHW, THHW, THW, THWN, XHHW, USE, ZW	Types TBS, SA, SIS, FEP, FEPB, MI, RHH, RHW-2, THHN, THHW, THW-2, THWN-2, USE-2, XHH, XHHW, XHHW-2, ZW-2
COPPER			
70 - 77	1.08	1.05	1.04
78 - 86	1.00	1.00	1.00
87 - 95	0.91	0.94	0.96
96 -104	0.82	0.88	0.91
105 -113	0.71	0.82	0.87
114 -122	0.58	0.75	0.82
123 - 131	0.41	0.67	0.76
132 - 140	-	0.58	0.71
141 - 158	-	0.33	0.58
159 - 176	-	-	0.41

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Table 310.16 Allowable Ampacities of Insulated Conductors Rated 0 Through 2000 Volts, 60°C through 90°C

Size AWG or kcmil		Temperature Rating of Conductor (See Table 310.13)						Size AWG or kcmil
		60° C (140° F)	75° C (167° F)	90° C (194° F)	60° C (140° F)	75° C (167° F)	90° C (194° F)	
		Types TW, UF	Types RHW, THHW, THW, THWN, XHHW, USE, ZW	Types TBS, SA, SIS, FEP, FEPB, MI, RHH, RHW-2, THHN, THHW, THW-2, THWN-2, USE-2, XHH, XHHW, XHHW-2, ZW-2	Types TW, UF	Types RHW, THHW, THW, THWN, XHHW, USE	Types TBS, SA, SIS, THHN, THHW, THW-2, THWN-2, RHH, RHW-2, USE-2, XHH, XHHW, XHHW-2, ZW-2	
COPPER			ALUMINUM OR COPPER-CLAD AL					
18			14					
14*	20	20	25					
	25			20				
10*	30	35	40	25	30	35	10	
	40			30				
6	55	65	75	40	50	60	6	
	70			55				
3	85	100	110	65	75	85	3	
	95			75				
1	110	130	150	85	100	115	1	
	125			100				
2/0	145	175	195	115	135	150	2/0	
3/0	165	200	225	130	155	175	3/0	
4/0	195	230	260	150	180	205	4/0	

Table 310.15 (B) (2)(a) Adjustment Factors for More Than 3 Current Carrying Conductors in a Raceway	
Number of Current- Carrying Conductors	Percent of Values in Tables 310.16
4-6	80
7-9	70
10-20	50
21-30	45
31-40	40
41 and above	35