This is an Illustrated Course.

1. Download Quizzes – Open – Print.

2. Login to your account using your ID and password.

3. Start viewing the course, one web page at a time.

4. The answers to the quiz questions are found on the course web pages.

5: Circle the correct answers on your printed copy of the quizzes as you study the course web pages.

Quiz questions track the web pages as you view them.

6. Refer to your printed quizzes to find the correct answers to each of the on-line quiz questions.

You will notice that the questions are exactly the same as your printed ones
This is just like an open book test.

Chapter 1 Electrical history

Question 1:
Ben Franklin lived in the
1700's
1800's
1900's

Question 2:
What denomination of US Currency is Ben Franklin's likeness on?
20 50 100

Question 3:
Which device is Ben Franklin known to have invented?
Cotton Gin
Lightning rod
Horseless carriage

Question 4:
Ben Franklin invented Bifocal Glasses.
True False

Question 5:
Ben Franklin was an advocate for public building safety codes.
True False

Question 6:
Nikola Tesla immigrated from
Croatia
Serbia
Russia

Question 7:
Approximately how many inventions did Nikola Tesla patent?
300 700 1700

Question 8:
Nikola Tesla worked with Thomas Edison and both were long time advocates of DC power.
True False

Question 9:
Which electrical power system did Nikola Tesla end up favoring?
AC

DC

Question 10:
AC means:
Air conditioning
Alternative current
Alternating current
Alternating capacitance

Question 11:
Thomas Edison lived in the
1700's 1800's 1800's – 1900's 1900's

Question 12:
Did Thomas Edison Develop the first Light bulb?
Yes No

Question 13:
After inventing the phonograph, Thomas Edison worked with George Eastman to invent
The light bulb
The phonograph
The telephone
Motion pictures

Question 14:
George Westinghouse was primarily responsible for
AC power transmission
DC power transmission
Steam engine development
Telegraphs

Question 15:
Approximately how many patents did George Westinghouse hold
236 2854 400

Question 16:
A well known invention by George Westinghouse was
The air brake
The Light bulb
Turbines
Gas lighting

Question 17:
George Westinghouse was a supporter of DC Electricity
False True

Question 18:
The Moving Iron Meter was developed as what type of instrument?
Volt meter Amp meter

Question 19:
The rapid increase in the use of electricity at the end of the 1800's saw a rapid increase in _____.
Electrical fires
Electrocutions
Electrical poisonings
Birth defects

Question 20.
As a result, the first _____ was formulated in 1897.
Electrical Fire Code
National Electrical Code
Fire Safety Code
Electrical poisoning code.

Question 21:
Georg Simon Ohm was able to define the relationship between voltage, current, and resistance, which represented the true beginning of electrical circuit analysis
True False

Chapter 2 Quiz Basic Fundamentals

Question 1:
An electron has a _____ charge.
Positive Negative
Neutral

Question 2:
In a stable atom, the number of positively charged particles is _____ to the number of negatively charged particles.
Equal to Greater than
Less than.

Question 3:
The positively charged particle of an element is a _____
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 know 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 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, 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 lower charged body to the higher charged body

Question 9:
As the number of electrons in the outer orbit increases, the atoms change in behavior from a _____ to a _____.
Conductor / insulator
Insulator/ conductor
No change either case

Question 10.
Which of the following is NOT an insulator.
Electrical tape Copper wire Plastic
Glass

Question 11.
Corrosion on terminal is not desired because it _____
Acts as an insulator, creates resistance which results in 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:
Which ways can electricity be produced.
Chemical - batteries
Thermal
Photo-electric
Magnetically – mechanically generated
All of the above

Question 14:
The ANODE in a battery is
Positively charged
Negatively charged
Neutrally charged

Question 15:
The CATHODE in a battery is
Positively charged
Negatively charged
Neutrally charged

Question 16:
A typical material used in a Cathode would be
Carbon black and manganese dioxide
Charcoal and dioxins paste
Rubber and silicon paste

Question 17:
An alkaline battery would use _____ as a base.
Alklinous. Sulfuric acid Formic acid
Potassium hydroxide

Question 18:
What metal is normally used for an anode.
Iron Steel Silver
zinc

Question 19:
Dry cells can be recharged.
True False

Question 20.
A wet cell uses _____ instead of a paste between the 2 plates.
Solid Liquid Gas
Electromagnetic sponge material

Question 21:
The electrolyte in a wet cell is typically
Water Formic acid Sulfuric acid
Potassium hydroxide

Question 22:
Which of the above symbols represents negative electrons or a cathode
1 2 3 4 5

Question 23:
Which of the above symbols represents a positive proton or Anode.
1 2 3 4 5

Question 24:
Which of the above symbols represents a battery or direct current.
1 2 3 4 5

Question 25:
Magnets are surrounded with lines of force that are called flux.
True False

Question 26:
Two positive magnetic poles attract each other.
True False

Question 27:
As the current increases in a wire, the strength of the magnetic field
decreases
does not change
increases
is not influenced by current flow.

Question 28:
If you reverse the current flow in a wire the magnetic lines of force will not rotate in the opposite direction.
True False

Question 29:
When a wire is moved through a magnetic field, electricity flows in the wire.
True False

Question 30:
The flow of AC electricity changes direction during a cycle.
True False

Question 31:
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

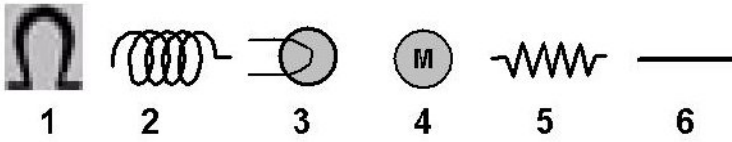
Question 32:
The maximum voltage generated is found at _____ degrees in the position of the armature vs. the magnetic poles.
Zero 45 66
90 180

Question 33:
Voltage measured in a home is about 70% of the peak voltage that is generated.
True False

Chapter 3 Quiz Basic Circuits

Question 1:
Which of the following is not a basic part of an electric circuit?
Fuse Source of Power Load
Switch Conductors

Question 2:
The units used to measure resistance are _____.
Ohms volts amps



Question 3:
Which of these symbols represents OHMS
1 2 3 4 5

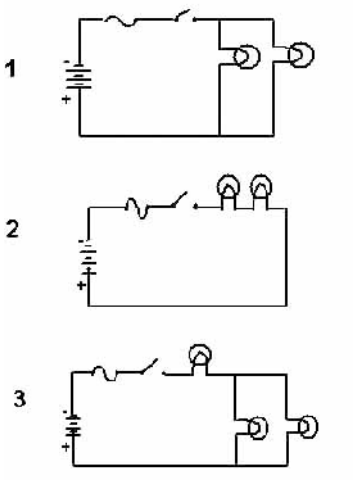
Question 4;
Which of these symbols represents a MOTOR
1 2 3 4 5

Question 5:
Which of these symbols represents a RESISTANCE HEATER
1 2 3 4 5

Question 6:
Which of these symbols represents LIGHT
1 2 3 4 5

Question 7:
In a series circuit, how many paths are there for current to flow?
One Path Two separate paths three separate paths

Question 8:
In a Parallel circuit, how many paths are there for current to flow?
One Path Two or more separate paths



Question 9:
A series/parallel circuit is represented by illustration _____.
1 2
3

Question 10:
A parallel circuit is represented by illustration _____.
1 2 3

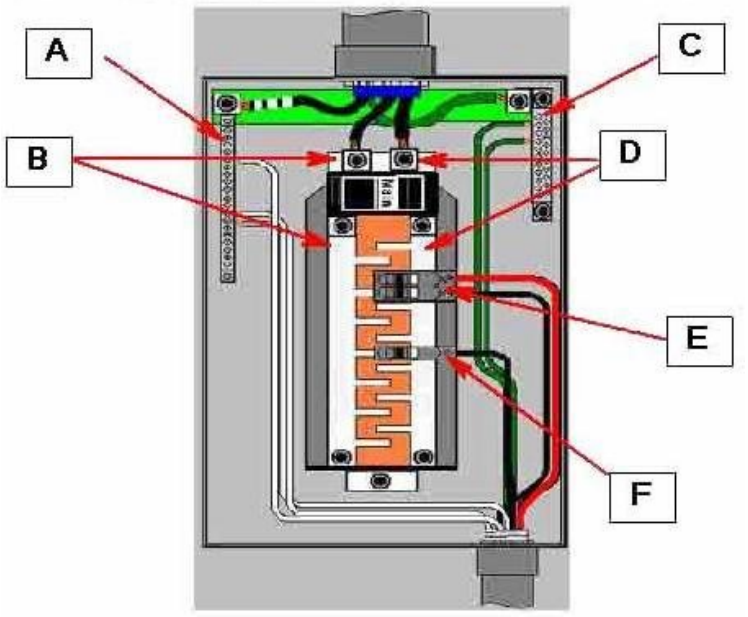
Question 11:
A series circuit is represented by illustration _____.
1 2 3

Question 12:
A fuse is added to the circuit to protect the circuit and the other loads.
True False

Chapter 4 Quiz Power Distribution

Question 1:
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 2
After power is transmitted from the hydroelectric dam to your home, generally what is the electrical voltage coming into your home?
1300 volts
9 volts
240 volts
110 volts



Question 3:
The ground buss bar is labeled _____.
A B C D E

Question 4:
L1 buss bar is labeled _____.
A B C D E

Question 5:
The 120 v breaker is labeled _____.
A C D E F

Question 6:
The L2 buss bar is labeled _____.
A B C D E

Question 7: The neutral buss bar is labeled _____.
A B C D E

Question 8: The 240 V breaker is labeled _____.
A B C D E

Question 9
How many 120 volt legs enter a typical homes power panel?
1 leg 2 legs 3 legs

Question 10:
In a typical homes power panel, the ground buss and the Neutral buss are connected
True False

Question 11:
It is good practice to remove the third or ground prong from an electric drill's plug.
True False

Question 12:
A 240-volt circuit breaker connects to a single 120-volt leg in a typical homes power panel.
True False

Chapter 5 Quiz Meters

Question 1:
Electrical potential is measured in:
ohms volts watts amps
none of the above

Question 2:
Using a volt meter, you will get a voltage reading when taking a

measurement across an electrical power source.
True False

Question 3:
Using a volt meter, you will get a voltage reading when taking a measurement across an electrical load.
True False

Question 4:
When testing for resistance using a volt / ohm meter and you are testing across a open switch (voltage disconnected) , your reading will be O.L.
True False

Question 5:
When testing a good closed switch your reading will be O.L.
True False

Question 6:
When testing resistance in a good heating element, you will get the following reading from your Volt / Ohm meter?
O.L.
some Ohms
some Volts

Question 7:
Water heaters with a rated circuit load in excess of 3,500 watts at 208 volts must have wire no smaller than:
6 AWG 8 AWG 10 AWG
12 AWG 14 AWG

Question 8:
In a water heater, cold water enters the tank at the _____
Top – because the inlet is located at the top of the tank
Bottom - because cold water enters through a dip tube at the top of the tank ending at the bottom
Bottom – because cold water enters through the lower drain connection

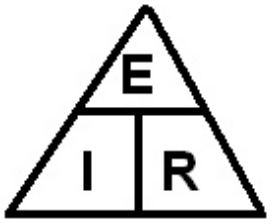
Question 9:
In a water heater, the hot water is drawn from this section of the tank.
Top
Middle
Bottom

Chapter 6 Quiz Ohms Law

Question 1:
In the formula for Ohms law, what does the letter E stand for?
Volts Ohms Amps

Question 2:
In the formula for Ohms law, what does the letter I stand for?
Volts Ohms Amps

Question 3:
In the formula for Ohms law, what does the letter R stand for?
Volts Ohms Amps



Question 4:
Using the above formula for ohms law, write the equation for finding Volts
E = I x R E = I / R E = R / I

Question 5:
Using the above formula for ohms law, write the equation for finding Current
I = E / R I = E x R I = R/E

Question 6:
Using the above formula for ohms law, write the equation for finding Resistance
R = E / I R = E x I R= I/E

Question 7:
Given E = 208 volts, R = 121 ohms, I = _____
1.7 amps 0.58 amps 25.2 amps none of the above

Question 8:
Given: R = 10 ohms, I= 48 amps, What is the voltage?
2.08 v 480v 208v 240v 120v

Question 9:
Given: Voltage = 120 volts, Amps = 15, R = _____
80 ohms 8 ohms 1800 ohms none of the above

Chapter 7 Quiz –Grounding and Bonding

Question 1:

Proper grounding is important so that _____
During an seismic ground shift the equipment is stationary
The equipment is always level and plumb
The equipment does not move from the set location
None of the above

Question 2:
A green wire fastened to metal parts of equipment means ____
The metal parts are electrically connected
The metal parts are part of the fan circuits.
The equipment and parts are environmentally safe
None of the above

Question 3:
The earth can be used as a sole method of grounding.
True False

Question 4:
A ground connection to a water pipe must be made within _____ feet of the entrance of the pipe to the building.
1 3 5 8 10

Chapter 8 Quiz Wiring Methods

Question 1:
A 12 AWG copper wire can generally be used to carry a maximum of _____ amps.
10 12 16 20 30

Question 2:
A 10 AWG copper wire can generally be used to carry a maximum of _____ amps.
10 12 16 20 30

Question 3:
Which wire is the largest in diameter?
8 gauge 10 gauge 12 gauge
16 gauge 20 gauge

Question 4:
By increasing the diameter of a wire, more electrons or increased amps, can flow without the build up of excessive heat.
True False

Question 5:
A standard plug fuse will fit in an S type fuse holder.
True False

Question 6:
A standard plug fuse can be reset.
True False

Question 7:
The common rating of a circuit breaker is in _____.
volts ohms arch corona rating amps dielectric strength

Question 8
This is an alternate term for Romex.
RM
NM
MN
Non of the above

Question 9
When installing Romex, the minimum distance back from the face of the stud to the routing hole is____
1”
1 ¼”
1 ½”
2”

Question 10
When installing Romex on a wooden stud, no extra protection is needed if the cable is more than 1 ¼” from the face of the stud.
True False

Question 11
A protective nail plate should be at least _____ inches in thickness.
1/32 1/16 3/32 1/8

Question 12
Romex must be supported within _____ inches of a box.
6 8 12
16

Question 13
Romex must be support at least every _____ feet.
1 3 4 ½ 6 8

Question 14
When installing Romex in metal studs, it is not necessary to install protection for the cables in the holes.
True False

Question 15

Romex entering or exiting a power panel or junction box need to be secured with cable clamps.
True False

Question 16
Romex may be installed in wet locations without conduit.
True False

Question 17
Romex is not UV sensitive and may be installed in situations exposed to sunlight.
True False

Chapter 9 Quiz - Safety

Question 1
GFCI means:
Ground fault Circuit Interrupters
Grounded Facility Circuit Interrupter
Gross Fluctuation Capacitor Interaction
None of the above

Question 2
The year that the National Electric Code mandated GFCI protection in houses.
1993
1963
1973
2003

Question 3
The purpose of a GFCI is____
Conserves electricity by interrupting current flow
Automatically re-sets circuit when power is interrupted
Instantly interrupts current flow to prevent shock
All of the above

Question 4
GFCI receptacles are required on all receptacles serving kitchen counter tops.
True false

Question 5
GFCI Receptacles are required for dedicated circuit that only supplies power for a garbage disposal.
True False

Question 6
GFCI Receptacles are required when installed in the garage.
True false

Question 7:
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 disconnect box.
Remove the fuses from the disconnect box.

Question 8:
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 disconnect box.
Remove the fuses from the disconnect box.

Question 9:
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 disconnect box.
Remove the fuses from the disconnect box.

Question 10:
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 disconnect box.
Remove the fuses from the disconnect box.

Question 11:
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 disconnect box.
Remove the fuses from the disconnect box.

Question 12:
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 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 13:
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 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 14
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 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 15:
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 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 16:
Metal ladders should be used while working with electricity.
True false

Question 17:
Remove jewelry when working with electricity.
True false