B-005-010-009 **(A)**

What property allows an RF bypass capacitor to have little effect on an audio circuit?

A High reactance at low frequencies
B Low reactance at high frequencies
C High reactance at high frequencies
D Low reactance at low frequencies

B-005-010-010 **(D)**

What property allows an RF choke coil to have little effect on signals meant to flow through the coil?

A High reactance at low frequencies
B Low reactance at high frequencies
C High reactance at high frequencies
D Low reactance at low frequencies

B-005-010-011 **(D)**

In general, the reactance of inductors increases with:

A decreasing AC frequency
B decreasing applied voltage
C increasing applied voltage
D increasing AC frequency

B-005-011-001 **(D)**

If no load is attached to the secondary winding of a transformer, what is current in the primary winding called?

A Direct current
B Latent current
C Stabilizing current
D Magnetizing current

B-005-011-002 **(B)**

A transformer operates a 6.3 volt 2 ampere light bulb from its secondary winding. The input power to the primary winding is approximately:

A 3 watts
B 13 watts
C 6 watts
D 8 watts

B-005-011-003 **(B)**

A transformer has a 240 volt primary that draws a current of 250 milliamperes from the mains supply. Assuming no losses and only one secondary, what current would be available from the 12 volt secondary?

A 50 amperes
B 5 amperes
C 215 amperes
D 25 amperes

B-005-011-004 **(C)**

In a mains power transformer, the primary winding has 250 turns, and the secondary has 500. If the input voltage is 120 volts, the likely secondary voltage is:

A 610 V
B 26 V
C 240 V
D 480 V

B-005-011-005 **(B)**

The strength of the magnetic field around a conductor in air is:

A inversely proportional to the voltage on the conductor
B directly proportional to the current in the conductor
C inversely proportional to the diameter of the conductor
D directly proportional to the diameter of the conductor

B-005-011-006 **(A)**

Maximum induced voltage in a coil occurs when:

A current is going through its greatest rate of change
B the current through the coil is of a DC nature
C current is going through its least rate of change
D the magnetic field around the coil is not changing

B-005-011-007 **(C)**

The voltage induced in a conductor moving in a magnetic field is at a maximum when the movement is:

A parallel to the lines of force
B made in a clockwise direction
C perpendicular to the lines of force
D made in a counter clockwise direction

B-005-011-008 **(A)**

A 100% efficient transformer has a turns ratio of 1/5. If the secondary current is 50 milliamperes, the primary current is:

A 0.25 A
B 2 500 mA
C 0.01 A
D 0.25 mA

B-005-011-009 **(B)**

A force of repulsion exists between two _____ magnetic poles.

A negative
B like
C unlike
D positive

B-005-011-010 **(A)**

A permanent magnet would most likely be made from:

A steel
B copper
C aluminum
D brass

B-005-011-011 **(B)**

The fact that energy transfer from primary to secondary windings in a power transformer is not perfect is indicated by:

A high primary voltages
B warm iron laminations
C electrostatic shielding
D large secondary currents

B-005-012-001 **(B)**

Resonance is the condition that exists when:

A resistance is equal to the reactance
B inductive reactance and capacitive reactance are equal
C inductive reactance is the only opposition in the circuit
D the circuit contains no resistance

B-005-012-002 **(C)**

Parallel tuned circuits offer:

A zero impedance at resonance
B an impedance equal to resistance of the circuit
C high impedance at resonance
D low impedance at resonance

B-005-012-003 **(D)**

Resonance is an electrical property used to describe:

A an inductor
B a set of parallel inductors
C the results of tuning a varicap (varactor)
D the frequency characteristic of a coil and capacitor circuit

B-005-012-004 **(D)**

A tuned circuit is formed from two basic components. These are:

A resistors and transistors
B directors and reflectors
C diodes and transistors
D inductors and capacitors

B-005-012-005 **(B)**

When a parallel coil-capacitor combination is supplied with AC of different frequencies, there will be one frequency where the impedance will be highest. This is the:

A reactive frequency
B resonant frequency
C impedance frequency
D inductive frequency

B-005-012-006 **(B)**

In a parallel-resonant circuit at resonance, the circuit has a:

A high mutual inductance
B high impedance
C low impedance
D low mutual inductance

B-005-012-007 **(B)**

In a series resonant circuit at resonance, the circuit has:

A high mutual inductance
B low impedance
C high impedance
D low mutual inductance

B-005-012-008 **(D)**

A coil and an air-spaced capacitor are arranged to form a resonant circuit. The resonant frequency will remain the same if we:

A increase the area of plates in the capacitor
B insert Mylar sheets between the plates of the capacitor
C wind more turns on the coil
D add a resistor to the circuit

B-005-012-009 **(B)**

Resonant circuits in a receiver are used to:

A adjust voltage levels
B select signal frequencies
C filter direct current
D increase power

B-005-012-010 **(D)**

Resonance is the condition that exists when:

A inductive reactance is the only opposition in the circuit
B the circuit contains no resistance
C resistance is equal to the reactance
D inductive reactance and capacitive reactance are equal and opposite in sign

B-005-012-011 **(A)**

When a series LCR circuit is tuned to the frequency of the source, the:

A line current reaches maximum
B line current lags the applied voltage
C line current leads the applied voltage
D impedance is maximum

B-005-013-001 **(A)**

How is a voltmeter usually connected to a circuit under test?

A In parallel with the circuit
B In series with the circuit
C In quadrature with the circuit
D In phase with the circuit

B-005-013-002 **(A)**

How is an ammeter usually connected to a circuit under test?

A In series with the circuit
B In quadrature with the circuit
C In phase with the circuit
D In parallel with the circuit

B-005-013-003 **(A)**

What does a multimeter measure?

A Voltage, current and resistance
B Resistance, capacitance and inductance
C Resistance and reactance
D SWR and power

B-005-013-004 **(B)**

The correct instrument to measure plate current or collector current of a transmitter is:

A a voltmeter
B an ammeter
C an ohmmeter
D a wattmeter

B-005-013-005 **(D)**

Which of the following meters would you use to measure the power supply current drawn by a small hand-held transistorized receiver?

A An RF ammeter
B An RF power meter
C An electrostatic voltmeter
D A DC ammeter

B-005-013-006 **(D)**

When measuring current drawn from a DC power supply, it is true to say that the meter will act in circuit as:

A a perfect conductor
B an extra current drain
C an insulator
D a low value resistance

B-005-013-007 **(D)**

When measuring the current drawn by a receiver from a power supply, the current meter should be placed:

A in series with both receiver power leads
B in parallel with both receiver power supply leads
C in parallel with one of the receiver power leads
D in series with one of the receiver power leads

B-005-013-008 **(B)**

Potential difference is measured by means of:

A an ammeter
B a voltmeter
C a wattmeter
D an ohmmeter

B-005-013-009 **(A)**

The instrument used for measuring the flow of electrical current is the:

A ammeter
B faradmeter
C wattmeter
D voltmeter

B-005-013-010 **(D)**

In measuring volts and amperes, the connections should be made with:

A the voltmeter in series and ammeter in parallel
B both voltmeter and ammeter in series
C both voltmeter and ammeter in parallel
D the voltmeter in parallel and ammeter in series

B-006-001-001 **(A)**

What connects your transceiver to your antenna?

A A transmission line
B The power cord
C A ground wire
D A dummy load

B-006-001-002 **(D)**

The characteristic impedance of a transmission line is determined by the:

A length of the line
B frequency at which the line is operated
C load placed on the line
D physical dimensions and relative positions of the conductors

B-006-001-003 **(A)**

The characteristic impedance of a 20 metre piece of transmission line is 52 ohms. If 10 metres were cut off, the impedance would be:

A 52 ohms
B 26 ohms
C 39 ohms
D 13 ohms

B-006-001-004 **(C)**

The characteristic impedance of a coaxial line:

A is correct for only one size of line
B is greater for larger diameter line
C can be the same for different diameter line
D changes significantly with the frequency of the energy it carries

B-006-001-005 **(A)**

What commonly available antenna transmission line can be buried directly in the ground for some distance without adverse effects?

A Coaxial cable
B 300 ohm twin-lead
C 600 ohm open-wire line
D 75 ohm twin-lead

B-006-001-006 **(A)**

The characteristic impedance of a transmission line is:

A equal to the pure resistance which, if connected to the end of the line, will absorb all the power arriving along it

B the impedance of a section of the line one wavelength long

C the dynamic impedance of the line at the operating frequency

D the ratio of the power supplied to the line to the power delivered to the load

B-006-001-007 **(D)**

A transmission line differs from an ordinary circuit or network in communications or signalling devices in one very important way. That important aspect is:

A capacitive reactance

B inductive reactance

C resistance

D propagation delay

B-006-001-008 **(D)**

The characteristic impedance of a parallel wire transmission line does not depend on the:

A radius of the conductors

B centre to centre distance between conductors

C dielectric

D velocity of energy on the line

B-006-001-009 **(D)**

If the impedance terminating a transmission line differs significantly from the characteristic impedance of the line, what will be observed at the input of the line?

A An infinite impedance

B A negative impedance

C An impedance nearly equal to the characteristic impedance

D Some value of impedance influenced by line length

B-006-001-010 **(A)**

What factors determine the characteristic impedance of a parallel-conductor antenna transmission line?

A The distance between the centres of the conductors and the radius of the conductors

B The distance between the centres of the conductors and the length of the line

C The radius of the conductors and the frequency of the signal

D The frequency of the signal and the length of the line

B-006-001-011 **(A)**

What factors determine the characteristic impedance of a coaxial antenna transmission line?

A The ratio of the diameter of the inner conductor to the diameter of the outer shield

B The diameter of the shield and the length of the line

C The diameter of the shield and the frequency of the signal

D The frequency of the signal and the length of the line

B-006-002-001 **(A)**

What is a coaxial cable?

A A center wire inside an insulating material which is covered by a metal sleeve or shield

B Two wires side-by-side in a plastic ribbon

C Two wires side-by-side held apart by insulating rods

D Two wires twisted around each other in a spiral

B-006-002-002 **(D)**

What is parallel-conductor transmission line?

A Two wires twisted around each other in a spiral

B A center wire inside an insulating material which is covered by a metal sleeve or shield

C A metal pipe which is as wide or slightly wider than a wavelength of the signal it carries

D Two wires side-by-side held apart by insulating material

B-006-002-003 **(B)**

What kind of antenna transmission line is made of two conductors held apart by insulated rods?

A Twisted pair
B Open wire line
C Coaxial cable
D Twin lead in a plastic ribbon

B-006-002-004 **(D)**

What does the term "balun" mean?

A Balanced unloader
B Balanced unmodulator
C Balanced antenna network
D Balanced to unbalanced

B-006-002-005 **(A)**

Where would you install a balun to feed a dipole antenna with 50-ohm coaxial cable?

A Between the coaxial cable and the antenna
B Between the transmitter and the coaxial cable
C Between the antenna and the ground
D Between the coaxial cable and the ground

B-006-002-006 **(A)**

What is an unbalanced line?

A Transmission line with one conductor connected to ground
B Transmission line with neither conductor connected to ground
C Transmission line with both conductors connected to ground
D Transmission line with both conductors connected to each other

B-006-002-007 **(D)**

What device can be installed to feed a balanced antenna with an unbalanced transmission line?

A A triaxial transformer
B A wave trap
C A loading coil
D A balun

B-006-002-008 **(B)**

A flexible coaxial line contains:

A two parallel conductors separated by spacers
B braided shield conductor and insulation around a central conductor
C four or more conductors running parallel
D only one conductor

B-006-002-009 **(D)**

A balanced transmission line:

A has one conductor inside the other
B carries RF current on one wire only
C is made of one conductor only
D is made of two parallel wires

B-006-002-010 **(B)**

A 75 ohm transmission line could be matched to the 300 ohm feed point of an antenna:

A by inserting a diode in one leg of the antenna
B by using a 4 to 1 impedance transformer
C with an extra 250 ohm resistor
D by using a 4 to 1 trigatron

B-006-002-011 **(A)**

What kind of antenna transmission line can be constructed using two conductors which are maintained a uniform distance apart using insulated spreaders?

A 600 ohm open wire line
B Coaxial cable
C 75 ohm twin-lead
D 300 ohm twin-lead

B-006-003-001 **(C)**

Why does coaxial cable make a good antenna transmission line?

A It can be used near metal objects, and its impedance is higher than that of most amateur antennas
B You can make it at home, and its impedance matches most amateur antennas
C It is weatherproof, and its impedance matches most amateur antennas
D It is weatherproof, and its impedance is higher than that of most amateur antennas