

# Basic Qualification Question Bank for Amateur Radio Operator Certificate Examinations

## Electronic Theory



**B-005-01-01 (2)**

**If a dial marked in megahertz shows a reading of 3.525 MHz, what would it show if it were marked in kilohertz?**

- 35.25 kHz
- 3525 kHz
- 3 525 000 kHz
- 0.003525 kHz

**B-005-01-02 (1)**

**If an ammeter marked in amperes is used to measure a 3000 milliampere current, what reading would it show?**

- 3 amperes
- 0.003 ampere
- 0.3 ampere
- 3 000 000 amperes

**B-005-01-03 (1)**

**If a voltmeter marked in volts is used to measure a 3500 millivolt potential, what reading would it show?**

- 3.5 volts
- 0.35 volt
- 35 volts
- 350 volts

**B-005-01-04 (3)**

**How many microfarads is 1 000 000 picofarads?**

1 000 000 000 microfarads

1000 microfarads

1 microfarad

0.001 microfarad

**B-005-01-05 (2)**

**If you have a hand-held transceiver which puts out 500 milliwatts, how many watts would this be?**

5

0.5

50

0.02

**B-005-01-06 (4)**

**A kilohm is:**

0.1 ohm

0.001 ohm

10 ohms

1000 ohms

**B-005-01-07 (1)**

**6.6 kilovolts is equal to:**

6600 volts

660 volts

66 volts

66 000 volts

**B-005-01-08 (4)**

**A current of one quarter ampere may be written as:**

0.5 amperes

0.25 milliampere

250 microampere

250 milliamperes

**B-005-01-09 (2)**

**How many millivolts are equivalent to two volts?**

0.000002

2 000

2 000 000

0.002

**B-005-01-10 (1)**

**One megahertz is equal to:**

1 000 kHz

100 kHz

0.001 Hz

10 Hz

**B-005-01-11 (4)**

**An inductance of 10 000 microhenrys may be stated correctly as:**

100 millihenrys

10 henrys

1 000 henrys

10 millihenrys

**B-005-02-01 (2)**

**Name three good electrical conductors.**

Gold, silver, wood

Gold, silver, aluminum

Copper, aluminum, paper

Copper, gold, mica

**B-005-02-02 (3)**

**Name four good electrical insulators.**

Plastic, rubber, wood, carbon

Paper, glass, air, aluminum

Glass, air, plastic, porcelain

Glass, wood, copper, porcelain

**B-005-02-03 (4)**

**Why do resistors sometimes get hot when in use?**

Their reactance makes them heat up

Hotter circuit components nearby heat them up

They absorb magnetic energy which makes them hot

Some electrical energy passing through them is lost as heat

**B-005-02-04 (4)**

**What is the best conductor among the following materials?**

carbon

silicon

aluminium

copper

**B-005-02-05 (1)**

**The material listed, which will most readily allow an electric current to flow, is called?**

- a conductor
- an insulator
- a resistor
- a dielectric

**B-005-02-06 (4)**

**A length of metal is connected in a circuit and is found to conduct electricity very well. It would be best described as having a:**

- high resistance
- high wattage
- low wattage
- low resistance

**B-005-02-07 (2)**

**The letter "R" is the symbol for:**

- impedance
- resistance
- reluctance
- reactance

**B-005-02-08 (1)**

**The reciprocal of resistance is:**

- conductance
- reactance
- reluctance
- permeability

**B-005-02-09 (1)**

**Voltage drop means:**

- voltage developed across the terminals of a component
- any point in a radio circuit which has zero voltage
- difference in voltage at output terminals of a transformer
- the voltage which is dissipated before useful work is accomplished

**B-005-02-10 (2)**

**The resistance of a conductor changes with:**

- voltage
- temperature
- current
- humidity

**B-005-02-11 (1)**

**The most common material used to make a resistor is:**

carbon  
gold  
mica  
lead

**B-005-03-01 (2)**

**What is the word used to describe how fast electrical energy is used?**

Current  
Power  
Voltage  
Resistance

**B-005-03-02 (3)**

**If you have light bulbs marked 40 watts, 60 watts and 100 watts, which one will use electrical energy the fastest?**

They will all be the same  
The 40 watt bulb  
The 100 watt bulb  
The 60 watt bulb

**B-005-03-03 (3)**

**What is the basic unit of electrical**

The ampere  
The volt  
The watt  
The ohm

**B-005-03-04 (2)**

**Which electrical circuit will have no current?**

A short circuit  
An open circuit  
A complete circuit  
A closed circuit

**B-005-03-05 (2)**

**Which electrical circuit uses too much current?**

A dead circuit  
A short circuit  
A closed circuit  
An open circuit

**B-005-03-06 (3)**

**Power is expressed in:**

volts  
amperes  
watts  
ohms

**B-005-03-07 (3)**

**Which of the following two quantities should be multiplied together to find power?**

Inductance and capacitance  
Voltage and inductance  
Voltage and current  
Resistance and capacitance

**B-005-03-08 (4)**

**Which two electrical units multiplied together give the unit "watts"?**

Volts and farads  
Farads and henrys  
Amperes and henrys  
Volts and amperes

**B-005-03-09 (4)**

**A resistor in a circuit becomes very hot and starts to burn. This is because the resistor is dissipating too much:**

voltage  
resistance  
current  
power

**B-005-03-10 (3)**

**High power resistors are usually large with heavy leads. The size aids the operation of the resistor by:**

allowing higher voltage to be handled  
increasing the effective resistance of the resistor  
allowing heat to dissipate more readily  
making it shock proof

**B-005-03-11 (3)**

**The resistor that could dissipate the most heat would be marked:**

100 ohms  
2 ohms  
20 watts  
0.5 watt

**B-005-04-01 (3)**

**If a current of 2 amperes flows through a 50-ohm resistor, what is the voltage across the resistor?**

- 48 volts
- 52 volts
- 100 volts
- 25 volts

**B-005-04-02 (1)**

**How is the current in a DC circuit calculated when the voltage and resistance are known?**

- Current equals voltage divided by resistance
- Current equals resistance multiplied by voltage
- Current equals resistance divided by voltage
- Current equals power divided by voltage

**B-005-04-03 (2)**

**How is the resistance in a DC circuit calculated when the voltage and current are known?**

- Resistance equals current multiplied by voltage
- Resistance equals voltage divided by current
- Resistance equals power divided by voltage
- Resistance equals current divided by voltage

**B-005-04-04 (4)**

**How is the voltage in a DC circuit calculated when the current and resistance are known?**

- Voltage equals current divided by resistance
- Voltage equals resistance divided by current
- Voltage equals power divided by current
- Voltage equals current multiplied by resistance

**B-005-04-05 (2)**

**If a 12-volt battery supplies 0.25 ampere to a circuit, what is the circuit's resistance?**

- 3 ohms
- 48 ohms
- 12 ohms
- 0.25 ohm

**B-005-04-06 (1)**

**Calculate the value of resistance necessary to drop 100 volts with current flow of .8 milliamperes:**

- 125 kilohms
- 125 ohms
- 1250 ohms
- 1.25 kilohms

**B-005-04-07 (1)**

**The voltage required to force a current of 4.4 amperes through a resistance of 50 ohms is:**

- 220 volts
- 2220 volts
- 22.0 volts
- 0.220 volt

**B-005-04-08 (4)**

**A lamp has a resistance of 30 ohms and a 6 volt battery is connected. The current flow will be:**

- 2 amperes
- 0.5 ampere
- 0.005 ampere
- 0.2 ampere

**B-005-04-09 (1)**

**What voltage would be needed to supply a current of 200 mA, to operate an electric lamp which has a resistance of**

- 25 ohms?
- 5 volts
- 8 volts
- 175 volts
- 225 volts

**B-005-04-10 (1)**

**The resistance of a circuit can be found by using one of the following:**

- $R = E/I$
- $R = I/E$
- $R = E/R$
- $R = E \times I$

**B-005-04-11 (1)**

**If a 3 volt battery supplies 300 mA to a circuit, the circuit resistance is:**

- 10 ohms
- 9 ohms
- 5 ohms
- 3 ohms

**B-005-05-01 (1)**

**In a parallel circuit with a voltage source and several branch resistors, how is the total current related to the current in the branch resistors?**

- It equals the sum of the branch current through each resistor
- It equals the average of the branch current through each resistor
- It decreases as more parallel resistors are added to the circuit
- It is the sum of each resistor's voltage drop multiplied by the total number of resistors

**B-005-05-02 (1)**

**A 6 volt battery is connected across three resistances of connected in parallel.**

The current through the 10 ohms, 15 ohms and 20 ohms separate resistances, when added together, equals the total current drawn from the battery

The current flowing through the 10 ohm resistance is less than that flowing through the 20 ohm resistance

The voltage drop across each resistance added together equals 6 volts

The voltage drop across the 20 ohm resistance is greater than the voltage across the 10 ohm resistance

**B-005-05-03 (1)**

**Total resistance in a parallel circuit:**

is always less than the smallest resistance

depends upon the IR drop across each branch

could be equal to the resistance of one branch

depends upon the applied voltage

**B-005-05-04 (1)**

**Two resistors are connected in parallel and are connected across a 40 volt battery. If each resistor is 1000 ohms, the total current is:**

80 milliamperes

40 milliamperes

80 amperes

40 amperes

**B-005-05-05 (1)**

**The total resistance of resistors connected in series is:**

greater than the resistance of any one resistor

less than the resistance of any one resistor

equal to the highest resistance present

equal to the lowest resistance present

**B-005-05-06 (1)**

**Five 10 ohm resistors connected in series equals:**

50 ohms

5 ohms

10 ohms

1 ohm

**B-005-05-07 (4)**

**Which series combination of resistors would replace a single 120 ohm resistor?**

six 22 ohm

two 62 ohm

five 100 ohm

five 24 ohm

**B-005-05-08 (2)**

**If ten resistors of equal value were wired in parallel, the total resistance would be:**

- 10 / R
- R / 10
- 10 x R
- 10 + R

**B-005-05-09 (4)**

**The total resistance of four 68 ohm resistors wired in parallel is:**

- 12 ohms
- 34 ohms
- 272 ohms
- 17 ohms

**B-005-05-10 (3)**

**Two resistors are in parallel. Resistor A carries twice the current of resistor B, which means that:**

- the voltage across B is twice that across A
- the voltage across A is twice that across B
- A has half the resistance of B
- B has half the resistance of A

**B-005-05-11 (2)**

**The total current in a parallel circuit is equal to the:**

- source voltage divided by the value of one of the resistive elements
- sum of the currents through all the parallel branches
- source voltage divided by the sum of the resistive elements
- current in any one of the parallel branches

**B-005-06-01 (4)**

**Why would a large size resistor be used instead of a smaller one of the same resistance?**

- For better response time
- For a higher current gain
- For less impedance in the circuit
- For greater power dissipation

**B-005-06-02 (1)**

**How many watts of electrical power are used by a 12-VDC light bulb that draws 0.2 ampere?**

- 2.4 watts
- 60 watts
- 24 watts
- 6 watts

**B-005-06-03 (2)**

**The DC input power of a transmitter operating at 12 volts and drawing 500 milliamps would be:**

- 20 watts
- 6 watts
- 500 watts
- 12 watts

**B-005-06-04 (2)**

**When two 500 ohm 1 watt resistors are connected in series, the maximum total power that can be dissipated by the resistors is:**

- 1 watt
- 2 watts
- 1/2 watt
- 4 watts

**B-005-06-05 (3)**

**When two 500 ohm 1 watt resistors are connected in parallel, they can dissipate a maximum total power of:**

- 1/2 watt
- 1 watt
- 2 watts
- 4 watts

**B-005-06-06 (1)**

**If the voltage applied to two resistors in series is doubled, how much will the total power change?**

- increase four times
- decrease to half
- double
- no change

**B-005-06-07 (4)**

**If the power is 500 watts and the resistance is 20 ohms, the current is:**

- 2.5 amps
- 10 amps
- 25 amps
- 5 amps

**B-005-06-08 (1)**

**A 12 volt light bulb is rated at a power of 30 watts. The current drawn would be:**

- 30/12 amps
- 18 amps
- 360 amps
- 12/30 amps

**B-005-06-09 (1)**

**If two 10 ohm resistors are connected in series with a 10 volt battery, the power consumption would be:**

- 5 watts
- 10 watts
- 20 watts
- 100 watts

**B-005-06-10 (3)**

**One advantage of replacing a 50 ohm resistor with a parallel combination of two similarly rated 100 ohm resistors is that the parallel combination will have:**

- the same resistance but lesser power rating
- greater resistance and similar power rating
- the same resistance but greater power rating
- lesser resistance and similar power rating

**B-005-06-11 (3)**

**Resistor wattage ratings are:**

- calculated according to physical size
- expressed in joules per second
- determined by heat dissipation qualities
- variable in steps of one hundred

**B-005-07-01 (3)**

**What term means the number of times per second that an alternating current flows back and forth?**

- Speed
- Pulse rate
- Frequency
- Inductance

**B-005-07-02 (3)**

**Approximately what frequency range can most humans hear?**

- 20 000 - 30 000 Hz
- 200 - 200 000 Hz
- 20 - 20 000 Hz
- 0 - 20 Hz

**B-005-07-03 (4)**

**Why do we call signals in the range 20 Hz to 20 000 Hz audio frequencies?**

- Because the human ear cannot sense anything in this range
- Because this range is too low for radio energy
- Because the human ear can sense radio waves in this range
- Because the human ear can sense sounds in this range

**B-005-07-04 (1)**

**Electrical energy at a frequency of 7125 kHz is in what frequency range?**

- Radio
- Audio
- Hyper
- Super-high

**B-005-07-05 (1)**

**What is the name for the distance an AC signal travels during one complete cycle?**

- Wavelength
- Wave speed
- Waveform
- Wave spread

**B-005-07-06 (4)**

**What happens to a signal's wavelength as its frequency increases?**

- It gets longer
- It stays the same
- It disappears
- It gets shorter

**B-005-07-07 (3)**

**What happens to a signal's frequency as its wavelength gets longer?**

- It disappears
- It stays the same
- It goes down
- It goes up

**B-005-07-08 (2)**

**What does 60 hertz (Hz) mean?**

- 6000 metres per second
- 60 cycles per second
- 60 metres per second
- 6000 cycles per second

**B-005-07-09 (3)**

**If the frequency of the waveform is 100 Hz, the time for one cycle is:**

- 10 seconds
- 0.0001 second
- 0.01 second
- 1 second

**B-005-07-10 (1)**

**Current in an AC circuit goes through a complete cycle in 0.1 second. This means the AC has a frequency of:**

- 10 Hz
- 1 Hz
- 100 Hz
- 1000 Hz

**B-005-07-11 (4)**

**A signal is composed of a fundamental frequency of 2 kHz and another of 4 kHz. This 4 kHz signal is referred to as:**

- a fundamental of the 2 kHz signal
- the DC component of the main signal
- a dielectric signal of the main signal
- a harmonic of the 2 kHz signal

**B-005-08-01 (2)**

**A two-times increase in power results in a change of how many dB?**

- 6 dB higher
- 3 dB higher
- 12 dB higher
- 1 dB higher

**B-005-08-02 (4)**

**How can you decrease your transmitter's power by 3 dB?**

- Divide the original power by 1.5
- Divide the original power by 3
- Divide the original power by 4
- Divide the original power by 2

**B-005-08-03 (3)**

**How can you increase your transmitter's power by 6 dB?**

- Multiply the original power by 3
- Multiply the original power by 2
- Multiply the original power by 4
- Multiply the original power by 1.5

**B-005-08-04 (4)**

**If a signal-strength report is "10 dB over S9", what should the report be if the transmitter power is reduced from 1500 watts to 150 watts?**

- S9 plus 3 dB
- S9 minus 10 dB
- S9 plus 5 dB
- S9

**B-005-08-05 (1)**

If a signal-strength report is "20 dB over S9", what should the report be if the transmitter power is reduced from 1500 watts to 150 watts?

- S9 plus 10 dB
- S9 plus 5 dB
- S9 plus 3 dB
- S9

**B-005-08-06 (2)**

The unit "decibel" is used to indicate:

- an oscilloscope wave form
- a mathematical ratio
- certain radio waves
- a single side band signal

**B-005-08-07 (3)**

The power output from a transmitter increases from 1 watt to 2 watts. This is a db increase of:

- 30
- 6
- 3
- 1

**B-005-08-08 (2)**

The power of a transmitter is increased from 5 watts to 50 watts by a linear amplifier. The power gain, expressed in dB, is:

- 30 dB
- 10 dB
- 40 dB
- 20 dB

**B-005-08-09 (2)**

You add a 9 dB gain amplifier to your 2 watt handheld. What is the power output of the combination?

- 11 watts
- 16 watts
- 20 watts
- 18 watts

**B-005-08-10 (1)**

The power of a transmitter is increased from 2 watts to 8 watts. This is a power gain of \_\_\_\_\_ dB.

- 6 dB
- 3 dB
- 8 dB

9 dB

**B-005-08-11 (4)**

**A local amateur reports your 100W 2M simplex VHF transmission as 30 dB over S9. To reduce your signal to S9, you would reduce your power to \_\_\_\_\_ watts.**

1 W

10 W

33.3 W

100 mW

**B-005-09-01 (4)**

**If two equal-value inductors are connected in series, what is their total inductance?**

Half the value of one inductor

The same as the value of either inductor

The value of one inductor times the value of the other

Twice the value of one inductor

**B-005-09-02 (4)**

**If two equal-value inductors are connected in parallel, what is their total inductance?**

Twice the value of one inductor

The same as the value of either inductor

The value of one inductor times the value of the other

Half the value of one inductor

**B-005-09-03 (4)**

**If two equal-value capacitors are connected in series, what is their total capacitance?**

Twice the value of one capacitor

The same as the value of either capacitor

The value of one capacitor times the value of the other

Half the value of either capacitor

**B-005-09-04 (2)**

**If two equal-value capacitors are connected in parallel, what is their total capacitance?**

The same as the value of either capacitor

Twice the value of one capacitor

The value of one capacitor times the value of the other

Half the value of one capacitor

**B-005-09-05 (3)**

**What determines the inductance of a coil?**

The core material, the number of turns used to wind the core and the frequency of the current through the coil

The core diameter, the number of turns of wire used to wind the coil and the type of metal used for the wire

The core material, the core diameter, the length of the coil and the number of turns of wire used to wind the coil

The core material, the core diameter, the length of the coil and whether the coil is mounted horizontally or vertically

**B-005-09-06 (1)**

**What determines the capacitance of a capacitor?**

The material between the plates, the area of one side of one plate, the number of plates and the spacing between the plates

The material between the plates, the number of plates and the size of the wires connected to the plates

The number of plates, the spacing between the plates and whether the dielectric material is N type or P type

The material between the plates, the area of one plate, the number of plates and the material used for the protective coating

**B-005-09-07 (4)**

**If two equal-value capacitors are connected in parallel, what is their capacitance?**

The same value of either capacitor

The value of one capacitor times the value of the other

Half the value of either capacitor

Twice the value of either capacitor

**B-005-09-08 (2)**

**To replace a faulty 10 millihenry choke, you could use two:**

Two 20 millihenry chokes in series

Two 5 millihenry chokes in series

Two 30 millihenry chokes in parallel

Two 5 millihenry chokes in parallel

**B-005-09-09 (3)**

**Three 15 microfarad capacitors are wired in series. The total capacitance of this arrangement is:**

45 microfarads

12 microfarads

5 microfarads

18 microfarads

**B-005-09-10 (2)**

**Which series combinations of capacitors would best replace a faulty 10 microfarad capacitor?**

- two 10 microfarad capacitors
- two 20 microfarad capacitors
- twenty 2 microfarad capacitors
- ten 2 microfarad capacitors

**B-005-09-11 (3)**

**The total capacitance of two or more capacitors in series is:**

- found by adding each of the capacitors together and dividing by the total number of capacitors
- found by adding each of the capacitors together
- always less than the smallest capacitor
- always greater than the largest capacitor

**B-005-10-01 (3)**

**How does a coil react to AC?**

- As the amplitude of the applied AC increases, the reactance decreases
- As the amplitude of the applied AC increases, the reactance increases
- As the frequency of the applied AC increases, the reactance increases
- As the frequency of the applied AC increases, the reactance decreases

**B-005-10-02 (1)**

**How does a capacitor react to AC?**

- As the frequency of the applied AC increases, the reactance decreases
- As the frequency of the applied AC increases, the reactance increases
- As the amplitude of the applied AC increases, the reactance increases
- As the amplitude of the applied AC increases, the reactance decreases

**B-005-10-03 (2)**

**The reactance of capacitors increases as:**

- applied voltage increases
- AC frequency decreases
- applied voltage decreases
- AC frequency increases

**B-005-10-04 (3)**

**In inductances, AC may be opposed by both resistance of winding wire and reactance due to inductive effect. The term which includes resistance and reactance is:**

- resonance
- inductance
- impedance
- capacitance

**B-005-10-05 (1)**

**Capacitive reactance:**

decreases as frequency increases  
applies only to series RLC circuits  
increases as frequency increases  
increases with the time constant

**B-005-10-06 (4)**

**Inductive reactance may be increased by:**

a decrease in the applied frequency  
a decrease in the supplied current  
an increase in the applied voltage  
an increase in the applied frequency

**B-005-10-07 (2)**

**A choke coil of 4.25 microhenrys is used in a circuit at a frequency of 200 MHz. Its reactance is approximately:**

5 740 ohms  
5 340 ohms  
7 540 ohms  
4 750 ohms

**B-005-10-08 (1)**

**The capacitive reactance of a 25 microfarad capacitor connected to a 60 hertz line is:**

106.1 ohms  
9 420 ohms  
2.4 ohms  
1 500 ohms

**B-005-10-09 (4)**

**A power-supply filter has a capacitor of 10 microfarad. What is the capacitive reactance of this capacitor to a frequency of 60 hertz?**

200 ohms  
100 ohms  
500 ohms  
265 ohms

**B-005-10-10 (1)**

**What is the approximate inductive reactance of a 1 henry choke coil used in a 60 hertz circuit?**

376 ohms  
3760 ohms  
188 ohms  
1888 ohms

**B-005-10-11 (1)**

**In general, the reactance of inductors increases with:**

increasing AC frequency  
decreasing AC frequency  
decreasing applied voltage  
increasing applied voltage

**B-005-11-01 (1)**

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

Magnetizing current  
Direct current  
Excitation current  
Stabilizing current

**B-005-11-02 (1)**

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

13 watts  
6 watts  
8 watts  
3 watts

**B-005-11-03 (4)**

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

215 amperes  
25 amperes  
50 amperes  
5 amperes

**B-005-11-04 (2)**

**In a mains power transformer, the primary winding has 250 turns, and the secondary has 500. If the input voltage is 110 volts, the likely secondary voltage is:**

440 V  
220 V  
560 V  
24 V

**B-005-11-05 (3)**

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

inversely proportional to the diameter of the conductor  
directly proportional to the diameter of the conductor  
directly proportional to the current in the conductor  
inversely proportional to the voltage on the conductor

**B-005-11-06 (1)**

**Maximum induced voltage in a coil occurs when:**

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

**B-005-11-07 (3)**

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

made in a counterclockwise direction  
parallel to the lines of force  
perpendicular to the lines of force  
made in a clockwise direction

**B-005-11-08 (3)**

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

2 500 mA  
0.01 A  
0.25 A  
0.25 mA

**B-005-11-09 (4)**

**A force of repulsion exists between two \_\_\_\_\_ magnetic poles.**

unlike  
positive  
negative  
like

**B-005-11-10 (4)**

**A permanent magnet would most likely be made from:**

copper  
aluminum  
brass  
steel

**B-005-11-11 (3)**

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

electrostatic shielding  
large secondary currents  
warm iron laminations  
high primary voltages

**B-005-12-01 (1)**

**Resonance is the condition that exists when:**

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

**B-005-12-02 (4)**

**Parallel tuned circuits offer:**

low impedance at resonance  
zero impedance at resonance  
an impedance equal to resistance of the circuit  
very high impedance at resonance

**B-005-12-03 (4)**

**Resonance is an electrical property used to describe:**

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

**B-005-12-04 (4)**

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

resistors and transistors  
directors and reflectors  
diodes and transistors  
inductors and capacitors

**B-005-12-05 (1)**

**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:**

resonant frequency  
impedance frequency  
inductive frequency  
reactive frequency

**B-005-12-06 (4)**

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

low impedance  
low mutual inductance  
high mutual inductance  
high impedance

**B-005-12-07 (1)**

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

low impedance  
high impedance  
low mutual inductance  
high mutual inductance

**B-005-12-08 (4)**

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

increase the area of plates in the capacitor  
replace the air dielectric with oil in the capacitor  
wind more turns on the coil  
add a resistor to the circuit

**B-005-12-09 (2)**

**Resonant circuits in a receiver are used to:**

filter direct current  
select signal frequencies  
increase power  
adjust voltage levels

**B-005-12-10 (1)**

**Resonance is the condition that exists when:**

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

**B-005-12-11 (3)**

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

line current lags the applied voltage  
line current leads the applied voltage  
line current reaches maximum  
impedance is maximum

**B-005-13-01 (4)**

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

In series with the circuit  
In quadrature with the circuit  
In phase with the circuit  
In parallel with the circuit

**B-005-13-02 (2)**

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

- In quadrature with the circuit
- In series with the circuit
- In phase with the circuit
- In parallel with the circuit

**B-005-13-03 (2)**

**What does a multimeter measure?**

- Resistance, capacitance and inductance
- Voltage, current and resistance
- Resistance and reactance
- SWR and power

**B-005-13-04 (3)**

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

- an ohmmeter
- a wattmeter
- an ammeter
- a voltmeter

**B-005-13-05 (1)**

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

- a DC ammeter
- an RF ammeter
- an RF power meter
- an electrostatic voltmeter

**B-005-13-06 (2)**

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

- a perfect conductor
- a low value resistance
- an extra current drain
- an insulator

**B-005-13-07 (2)**

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

- in series with both receiver power leads
- in series with one of the receiver power leads
- in parallel with both receiver power supply leads
- in parallel with one of the receiver power leads

**B-005-13-08 (3)**

**Potential difference is measured by means of:**

a wattmeter  
an ohmmeter  
a voltmeter  
an ammeter

**B-005-13-09 (3)**

**Voltage drop means:**

the voltage which is dissipated before useful work is accomplished  
difference in voltage at output terminals of a transformer  
voltage between the terminals of a component  
any point in a radio circuit which has zero voltage

**B-005-13-10 (3)**

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

faradmeter  
wattmeter  
ammeter  
voltmeter

**B-005-13-11 (2)**

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

the voltmeter in series and ammeter in parallel  
the voltmeter in parallel and ammeter in series  
both voltmeter and ammeter in series  
both voltmeter and ammeter in parallel