

01-4-(c)

The world is divided into radio regulatory regions, each with different radio spectrum allocations. New Zealand is in:

- a Region 1
- b Region 2
- c Region 3
- d Region 4

02-0-(d)

As the holder of a New Zealand General Amateur Operator Certificate of Competency, you may operate:

- a within your local Postal District
- b anywhere in the world
- c only at your home address
- d anywhere in New Zealand and in any other country that recognises the Certificate

03-5-(b)

Persons in your family who are unqualified cannot transmit using your amateur station if they are alone with your equipment, because they must:

- a know the right frequencies and emissions required
- b hold a General Amateur Operator Certificate of Competency before they are allowed to be operators
- c not use your equipment without your express permission
- d know the correct abbreviations and the Q-code

04-4-(d)

Your amateur station is identified by transmitting your:

- a full name and address
- b "handle"
- c first name and location
- d callsign

05-8-(c)

A General Amateur Operator Certificate of Competency holder may permit any other person to:

- a take part in amateur radio communication
- b operate that operator's home station
- c pass brief messages of a personal nature, provided no fees or other consideration are requested or accepted
- d to work on radio repairs under their supervision

06-0-(d)

The expression "amateur third party communications" refers to:

- a three operators in a sequential contact
- b the legal transmission of encrypted messages
- c amateur operators passing messages for remuneration
- d messages to or on behalf of non-licensed people or organisations

07-9-(b)

A General Amateur Operator Certificate of Competency:

- a has a limited life-time
- b does not confer on its holder a monopoly on the use of any frequency or band
- c is transferable to your descendants
- d provides a waiver over copyright

08-1-(a)

When first qualified, an amateur radio operator is permitted to:

- a work on specified bands for 3 months, log at least 50 contacts and retain the log book for at least one year for possible official inspection
- b operate on all HF bands at least weekly using a computer for log-keeping
- c operate only in the amateur bands between 5 and 25 MHz for 12 months and present the log book for official inspection
- d operate on amateur bands between 5 and 25 MHz as and when the operator chooses

09-4-(c)

The band 146 to 148 MHz is:

- a exclusive to repeater operation
- b allocated exclusively for police communications
- c shared with other communication services
- d reserved for emergency communications

10-8-(d)

The term describing opposition to electron flow in a circuit is:

- a current
- b voltage
- c power
- d resistance

11-2-(d)

An important difference between a lead acid battery and a common torch battery is that only the lead acid battery:

- a has two terminals
- b contains an electrolyte
- c can be operated upside-down
- d can be recharged

12-6-(c)

The unit for the potential difference between two points in a circuit is the:

- a ampere
- b ohm
- c volt
- d coulomb

13-7-(a)

This voltage is needed to cause a current of 200 mA to flow in a lamp of 25 ohm resistance:

- a 5 volt
- b 8 volt
- c 175 volt
- d 225 volt

14-5-(a)

A current of 0.5 ampere flows through a resistor when 12 volt is applied. The value of the resistor is:

- a 24 ohm
- b 6 ohm
- c 12.5 ohm
- d 17 ohm

15-7-(a)

Three 10,000 ohm resistors are connected in series across a 90 volt supply. The voltage drop across one of the resistors is:

- a 30 volt
- b 60 volt
- c 90 volt
- d 15.8 volt

16-8-(d)

Resistors of 68 ohm, 47 kilohm, 560 ohm and 10 ohm are connected in parallel. The total resistance is:

- a between 68 and 560 ohm
- b between 560 and 47 kilohm
- c greater than 47 kilohm
- d less than 10 ohm

17-9-(b)

Three 500 ohm resistors are wired in series. Short-circuiting the centre resistor will change the value of the network from:

- a 500 ohm to 1000 ohm
- b 1500 ohm to 1000 ohm
- c 1000 ohm to 500 ohm
- d 1000 ohm to 1500 ohm

18-8-(d)

The power delivered to an antenna is 500 watt. The effective antenna resistance is 20 ohm. The antenna current is:

- a 25 amp
- b 2.5 amp
- c 10 amp
- d 5 amp

19-1-(b)

The following two electrical units multiplied together give the unit "watt":

- a volt and farad
- b volt and ampere
- c farad and henry
- d ampere and henry

20-7-(d)

One GHz is equal to:

- a 1000 kHz
- b 10 MHz
- c 100 MHz
- d 1000 MHz

21-5-(d)

Three 15 picofarad capacitors are wired in parallel. The value of the combination is:

- a 18 picofarad
- b 12 picofarad
- c 5 picofarad
- d 45 picofarad

22-2-(b)

Two 20 μH inductances are connected in parallel. The total inductance is:

- a 20 μH
- b 10 μH
- c 40 μH
- d 80 μH

23-4-(b)

An earth wire should be connected to the metal chassis of a mains-operated power supply, to ensure that if a fault develops, the chassis:

- a does not develop a high voltage with respect to the phase lead
- b does not develop a high voltage with respect to earth
- c becomes a conductor to bleed away static charge
- d provides a path to ground in case of lightning strikes

24-6-(b)

The type of rectifier diode found most often in power supplies is:

- a lithium
- b silicon
- c germanium
- d copper oxide

25-3-(c)

Bipolar transistors usually have:

- a 4 connecting leads
- b 1 connecting lead
- c 3 connecting leads
- d 2 connecting leads

26-5-(a)

A feature common to thermionic valves and transistors is that both:

- a can amplify signals
- b have electrons drifting through a vacuum
- c convert electrical energy to radio waves
- d use heat to cause electron movement

27-2-(b)

The correct instrument for measuring the supply current to an amplifier is a:

- a wattmeter
- b ammeter
- c voltmeter
- d ohmmeter

28-1-(d)

The input to an amplifier is 1 volt rms and output 100 volt rms. Assuming the same impedances, this is an increase of:

- a 10 dB
- b 20 dB
- c 100 dB
- d 40 dB

29-0-(d)

In designing an HF station, you would use this to reduce the effects of harmonic radiation:

- a dummy load
- b antenna switch
- c SWR bridge
- d low pass filter

30-4-(c)

In a frequency modulation receiver, this is located between the mixer and the intermediate frequency amplifier:

- a the limiter
- b the frequency discriminator
- c a filter
- d the radio frequency amplifier

31-7-(b)

In a single sideband and CW receiver, the output from this is connected to the product detector:

- a the mixer
- b the beat frequency oscillator
- c the radio frequency amplifier
- d the audio frequency amplifier

32-8-(c)

To receive Morse code signals, a BFO is employed in a superhet receiver to:

- a produce IF signals
- b beat with the local oscillator signal to produce sidebands
- c beat with the IF signal to produce an audio tone
- d produce an audio tone to beat with the IF signal

33-0-(d)

This audio shaping network is added at an FM receiver to restore proportionally attenuated lower audio frequencies:

- a a pre-emphasis network
- b an audio prescaler
- c a heterodyne suppressor
- d a de-emphasis network

34-9-(b)

A receiver squelch circuit:

- a automatically keeps the audio output at maximum level
- b silences the receiver speaker during periods of no received signal
- c provides a noisy operating environment
- d is not suitable for pocket-size receivers

35-4-(d)

A double-conversion receiver designed for SSB reception has a beat frequency oscillator and:

- a one IF stage and one local oscillator
- b two IF stages and three local oscillators
- c two IF stages and one local oscillator
- d two IF stages and two local oscillators

36-4-(c)

Very low noise figures for a high frequency receiver are relatively unimportant because:

- a the received signal creates high noise levels
- b the use of SSB and CW on the HF bands overcomes the noise, regardless of the front end
- c external HF noise, man-made and natural, are higher than the internal noise generated by the receiver
- d the succeeding stages, when used on HF, are very noisy

37-4-(d)

In an elementary frequency modulation transmitter, this is located between the oscillator and the power amplifier:

- a microphone
- b speech amplifier
- c modulator
- d frequency multiplier

38-7-(a)

In a single sideband transmitter, the output of the variable frequency oscillator is connected to the:

- a mixer
- b antenna
- c balanced modulator
- d linear amplifier

39-2-(c)

The following signal can be amplified using a non-linear amplifier:

- a SSB
- b AM
- c FM
- d DSBSC

40-9-(b)

To minimise the radiation of one particular harmonic, one can use a:

- a resistor
- b wave trap in the transmitter output
- c high pass filter in the transmitter output
- d filter in the receiver lead

41-2-(c)

A low pass filter will:

- a suppress sub-harmonics
- b always eliminate interference
- c reduce harmonics
- d improve harmonic radiation

42-4-(c)

A full-wave DC power supply operates from the New Zealand AC mains. The ripple frequency is:

- a 25 Hz
- b 50 Hz
- c 100 Hz
- d 70 Hz

43-0-(d)

A filter is used in a power supply to:

- a filter RF radiation from the output of the power supply
- b restore voltage variations
- c act as a 50 Hz tuned circuit
- d smooth the rectified waveform from the rectifier

44-8-(c)

Before calling CQ on the HF bands, you should:

- a request that other operators clear the frequency
- b request a signal report from any station listening
- c listen first, then ask if the frequency is in use
- d use a frequency where many stations are already calling

45-0-(d)

You are mobile and talking through a VHF repeater. The other station reports that you keep "dropping out". This means:

- a your signal is drifting lower in frequency
- b your voice is too low-pitched to be understood
- c you are not speaking loudly enough
- d your signal does not have enough strength to operate the repeater

46-4-(c)

The "RIT" control on a transceiver:

- a reduces interference on the transmission
- b changes the frequency of the transmitter section without affecting the frequency of the receiver section
- c changes the frequency of the receiver section without affecting the frequency of the transmitter section
- d changes the transmitting and receiver frequencies by the same amount

47-3-(a)

The question "who is calling me?" is asked by:

- a QRZ?
- b QRM?
- c QRP?
- d QRT?

48-7-(b)

An RF transmission line should be matched at the transmitter end to:

- a prevent frequency drift
- b transfer maximum power to the antenna
- c overcome fading of the transmitted signal
- d ensure that the radiated signal has the intended polarisation

49-9-(b)

If an antenna feedline must pass near grounded metal objects, the following type should be used:

- a 75 ohm twinlead
- b coaxial cable
- c 300 ohm twinlead
- d 600 ohm open-wire

50-7-(b)

The wavelength for a frequency of 25 MHz is:

- a 15 metres
- b 12 metres
- c 32 metres
- d 4 metres

51-7-(a)

The purpose of a balun in a transmitting antenna system is to:

- a match unbalanced and balanced transmission lines
- b balance harmonic radiation
- c reduce unbalanced standing waves
- d protect the antenna system from lightning strikes

52-9-(a)

A vertical antenna which uses a flat conductive surface at its base is the:

- a quarter-wave ground plane
- b vertical dipole
- c rhombic
- d long wire

53-0-(c)

The main characteristic of a vertical antenna is that it:

- a requires few insulators
- b is very sensitive to signals coming from horizontal aerials
- c receives signals from all points around it equally well
- d is easy to feed with TV ribbon feeder

54-4-(d)

The electric field of an electromagnetic wave is:

- a circular in its motion
- b out of phase with the magnetic field
- c maximum in the direction of motion
- d perpendicular to the direction of wave motion

55-0-(c)

High frequency, long-distance propagation is most dependent on:

- a tropospheric reflection
- b ground reflection
- c ionospheric reflection
- d inverted reflection

56-0-(b)

The speed of a radio wave:

- a varies indirectly to the frequency
- b is the same as the speed of light
- c is infinite in space
- d is always less than half the speed of light

57-3-(a)

Which of the following is most likely to cause broad-band continuous interference:

- a poor commutation in an electric motor
- b an electric blanket switch
- c a refrigerator thermostat
- d a microwave transmitter

58-7-(b)

A band-stop filter will:

- a stop frequencies each side of a band
- b pass frequencies each side of a band
- c only allow one spot frequency through
- d pass frequencies below 100 MHz

59-8-(c)

An active audio low-pass filter could be constructed using:

- a zener diodes and resistors
- b electrolytic capacitors and resistors
- c an operational amplifier, resistors and capacitors
- d a transformer and capacitors

60-9-(a)

The following communication mode is generally used for connecting to a VHF packet radio bulletin board:

- a FM
- b SSB
- c AM
- d DSB