**01-4**
**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**
**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**
**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**
**Your amateur station is identified by transmitting your:**
**a full name and address**
**b "handle"**
**c first name and location**
**d callsign**

**05-8**
**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**
**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**
**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**
**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**
**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**
**The term describing opposition to electron flow in a circuit is:**
**a current**
**b voltage**
**c power**
**d resistance**

**11-2**
**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**
**The unit for the potential difference between two points in a circuit is the:**
**a ampere**
**b ohm**
**c volt**
**d coulomb**

**13-7**
**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 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**
**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**
**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**
**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**
**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**
**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**
**One GHz is equal to:**
**a 1000 kHz**
**b 10 MHz**
**c 100 MHz**
**d 1000 MHz**

**21-5**
**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**
**Two 20 uH inductances are connected in parallel. The total inductance is:**
**a 20 uH**
**b 10 uH**
**c 40 uH**
**d 80 uH**

**23-4**
**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**
**The type of rectifier diode found most often in power supplies is:**
**a lithium**
**b silicon**
**c germanium**
**d copper oxide**

**25-3**
**Bipolar transistors usually have:**
**a 4 connecting leads**
**b 1 connecting lead**
**c 3 connecting leads**
**d 2 connecting leads**

**26-5**
**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**
**The correct instrument for measuring the supply current to an amplifier is a:**
**a wattmeter**
**b ammeter**
**c voltmeter**
**d ohmmeter**

**28-1**
**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**
**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**
**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**
**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**
**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**
**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**
**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**
**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**
**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**
**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**
**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**
**The following signal can be amplified using a non-linear amplifier:**
**a SSB**
**b AM**
**c FM**
**d DSBSC**

**40-9**
**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**
**A low pass filter will:**
**a suppress sub-harmonics**
**b always eliminate interference**
**c reduce harmonics**
**d improve harmonic radiation**

**42-4**
**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**
**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**
**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**
**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**
**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**
**The question "who is calling me?" is asked by:**
**a QRZ?**
**b QRM?**
**c QRP?**
**d QRT?**

**48-7**
**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**
**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**
**The wavelength for a frequency of 25 MHz is:**
**a 15 metres**
**b 12 metres**
**c 32 metres**
**d 4 metres**

**51-7**
**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 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**
**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**
**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**
**High frequency, long-distance propagation is most dependent on:**
**a tropospheric reflection**
**b ground reflection**
**c ionospheric reflection**
**d inverted reflection**

**56-0**
**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**
**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**
**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**
**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**
**The following communication mode is generally used for connecting to a VHF packet radio bulletin board:**
**a FM**
**b SSB**
**c AM**
**d DSB**