**01-9-(b)**
**The holder of a General Amateur Operator Certificate of Competency may:**
a    retransmit public broadcasts
b    transmit in bands allocated to the Amateur Service
c    repair radio equipment for profit
d    transmit on public service frequencies

**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

**03-4-(c)**
**A logbook for recording information about stations worked:**
a    is compulsory for every amateur radio operator
b    must list all messages sent
c    is recommended for all amateur radio operators
d    must record time in UTC

**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

**05-6-(d)**
**A General Amateur Operator Certificate of Competency is usually issued for:**
a    two years
b    five years
c    ten years
d    life

**06-4-(d)**
**The following messages from an amateur station are expressly forbidden:**
a    International No.2 code
b    Baudot code
c    ASCII
d    secret cipher

**07-3-(a)**
**A station using the callsign "VK3XYZ stroke ZL" is heard on your local VHF repeater. This is:**
a    the station of an overseas visitor
b    a confused person, probably with a stolen transceiver
c    an unauthorised callsign
d    an illegal operator

**08-5-(a)**
In New Zealand, the "15 metre band" frequency limits are:
a    21.00 to 21.45 MHz
b    21.00 to 21.40 MHz
c    21.00 to 21.35 MHz
d    21.00 to 21.30 MHz

**09-7-(a)**
The following band is an exclusive primary allocation for New Zealand
amateur radio operators:
a    21 to 21.45 MHz
b    10.1 to 10.15 MHz
c    146 to 148 MHz
d    3.5 to 3.9 MHz

**10-5-(a)**
These magnetic poles will repel:
a    like
b    unlike
c    positive
d    negative

**11-3-(a)**
As the temperature increases, the resistance of a conductor:
a    increases
b    decreases
c    remains constant
d    becomes negative

**12-4-(d)**
The watt is the unit of:
a    magnetic flux
b    electromagnetic field strength
c    breakdown voltage
d    power

**13-3-(a)**
I = E/R is a mathematical equation describing:
a    Ohm's Law
b    Thevenin's Theorem
c    Kirchoff's First Law
d    Kirchoff's Second Law

**14-1-(a)**
A circuit has a total resistance of 100 ohm and 50 volt is applied across
it. The current flow will be:
a    500 mA
b    50 mA
c    2 ampere
d    20 ampere

**15-5-(b)**
Six identical 2-volt bulbs are connected in series. The supply voltage to
cause the bulbs to light normally is:
a    1.2 V
b    12 V
c    6 V
d    2 V

**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

**17-8-(c)**
A simple transmitter requires a 50 ohm dummy load. You can fabricate this from:
a    four 300 ohm resistors in parallel
b    five 300 ohm resistors in parallel
c    six 300 ohm resistors in parallel
d    seven 300 ohm resistors in parallel

**18-4-(d)**
The current in a 100 kilohm resistor is 10 mA. The power dissipated is:
a    1 watt
b    100 watt
c    10,000 watt
d    10 watt

**19-4-(c)**
Each of 9 resistors in a circuit is dissipating 4 watt. If the circuit operates from a 12 volt supply, the total current flowing in the circuit is:
a    48 ampere
b    36 ampere
c    3 ampere
d    9 ampere

**20-5-(c)**
The correct name for the equivalent of "one cycle per second" is one:
a    henry
b    volt
c    hertz
d    coulomb

**21-7-(c)**
The reactance of a capacitor increases as the:
a    applied voltage increases
b    frequency increases
c    frequency decreases
d    applied voltage decreases

**22-3-(d)**
A toroidal inductor is one in which the:
a    windings are air-spaced
b    windings are wound on a ferrite rod
c    inductor is enclosed in a magnetic shield
d    windings are wound on a closed ring of magnetic material

**23-1-(d)**
For your safety, before checking a fault in a mains operated power supply
unit, first:
a    short the leads of the filter capacitor
b    check the action of the capacitor bleeder resistance
c    remove and check the fuse in the power supply
d    turn off the power and remove the power plug

**24-3-(d)**
A bipolar transistor has three terminals named:
a    base, emitter and drain
b    collector, base and source
c    drain, source and gate
d    emitter, base and collector

**25-7-(c)**
To bias a transistor to cut-off, the base must be:
a    at the collector potential
b    mid-way between collector and emitter potentials
c    at the emitter potential
d    mid-way between the collector and the supply potentials

**26-9-(a)**
A triode valve has this many grids:
a    one
b    two
c    three
d    three plus a filament

**27-7-(d)**
A good ammeter should have:
a    a very high internal resistance
b    a resistance equal to that of all other components in the circuit
c    an infinite resistance
d    a very low internal resistance

**28-0-(b)**
Assuming the same impedances, the input to an amplifier is 1 volt rms and
the output 10 volt rms. This is an increase of:
a    3 dB
b    20 dB
c    6 dB
d    10 dB

**29-4-(d)**
In an HF station, the "linear amplifier" is:
a    an amplifier to remove distortion in signals from the transceiver
b    an amplifier with all components arranged in-line
c    a push-pull amplifier to cancel second harmonic distortion
d    an optional amplifier to be switched in when higher power is required

**30-8-(c)**
In a frequency modulation receiver, this is located between the frequency
discriminator and the speaker and/or headphones:
a    limiter
b    intermediate frequency amplifier
c    audio frequency amplifier
d    radio frequency amplifier

**31-1-(a)**
In a single sideband and CW receiver, the output of this is connected to
the mixer:
a    the radio frequency amplifier
b    the intermediate frequency amplifier
c    the audio frequency amplifier
d    a filter

**32-7-(a)**
The BFO in a superhet receiver operates on a frequency nearest to that of
its:
a    IF amplifier
b    RF amplifier
c    audio amplifier
d    local oscillator

**33-8-(d)**
The abbreviation AGC means:
a    attenuating gain capacitor
b    anode-grid capacitor
c    amplified grid conductance
d    automatic gain control

**34-4-(c)**
A superhet receiver, with a 500 kHz IF, is receiving a signal at 21.0
MHz. A strong unwanted signal at 22 MHz is interfering. The cause is:
a    insufficient IF selectivity
b    the 22 MHz signal is out-of-band
c    22 MHz is the image frequency
d    insufficient RF gain

**35-3-(b)**
A single conversion receiver with a 9 MHz IF has a local oscillator
operating at 16 MHz. The frequency it is tuned to is:
a    16 MHz
b    7 MHz
c    21 MHz
d    9 MHz

**36-2-(d)**
The primary source of noise that can be heard in a UHF band receiver with
its antenna connected is:
a    detector noise
b    atmospheric noise
c    man-made noise
d    receiver front-end noise

**37-3-(b)**
In an elementary frequency modulation transmitter, this is located
between the modulator and the frequency multiplier:
a    speech amplifier
b    oscillator
c    power amplifier
d    microphone

**38-8-(c)**
In a single sideband transmitter, the output of this is connected to the mixer:
a    radio frequency oscillator
b    linear amplifier
c    variable frequency oscillator
d    antenna

**39-1-(a)**
The signal from a CW transmitter consists of:
a    an RF waveform which is keyed on and off to form Morse characters
b    a continuous unmodulated RF waveform
c    a continuous RF waveform modulated with an 800 Hz Morse signal
d    a continuous RF waveform which changes frequency in synchronism with an applied Morse signal

**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

**41-8-(d)**
Parasitic oscillations tend to occur in:
a    high voltage rectifiers
b    antenna matching circuits
c    SWR bridges
d    high gain amplifier stages

**42-2-(d)**
The following unit in a DC power supply performs a smoothing operation:
a    a fuse
b    a crowbar
c    a full-wave diode bridge
d    an electrolytic capacitor

**43-8-(d)**
In a regulated power supply, "current limiting" is sometimes used to:
a    prevent transformer core saturation
b    protect the mains fuse
c    eliminate earth-leakage effects
d    minimise short-circuit current passing through the regulator

**44-7-(a)**
When conversing via a VHF or UHF repeater, you should pause between overs for about:
a    3 seconds
b    half a second
c    30 seconds
d    several minutes

**45-5-(a)**
The standard frequency offset (split) for 70 cm repeaters in New Zealand
is plus or minus:
a   5 MHz
b   600 kHz
c   1 MHz
d   2 MHz

**46-7-(a)**
The AGC circuit is to:
a   minimise the adjustments needed to the receiver gain control knobs
b   expand the audio gain
c   limit the extent of amplitude generation
d   amplitude limit the crystal oscillator output

**47-5-(b)**
The "Q" signal "are you busy?" is:
a   QRM?
b   QRL?
c   QRT?
d   QRZ?

**48-5-(a)**
To obtain efficient transfer of power from a transmitter to an antenna,
it is important that there is a:
a   correct impedance match between transmitter and antenna
b   high load impedance
c   low load impedance
d   high standing wave ratio

**49-3-(a)**
A quarter-wave length of 50 ohm coaxial line is shorted at one end. The
impedance seen at the other end of the line is:
a   infinite
b   zero
c   50 ohm
d   150 ohm

**50-0-(d)**
The support member for the elements of a Yagi antenna is known as the:
a   reflector
b   driven element
c   director
d   boom

**51-9-(b)**
A half-wave antenna resonant at 7100 kHz is approximately this long:
a   40 metres
b   20 metres
c   80 metres
d   160 metres

**52-3-(b)**
The resonant frequency of an antenna may be increased by:
a   lengthening the radiating element
b   shortening the radiating element
c   increasing the height of the radiating element
d   lowering the radiating element

**53-7-(a)**
The main reason why many VHF base and mobile antennas in amateur use are
5/8 of a wavelength long is that:
a   most of the energy is radiated at a low angle
b   it is easy to match the antenna to the transmitter
c   it is a convenient length on VHF
d   the angle of radiation is high giving excellent local coverage

**54-7-(b)**
For long distance propagation, the radiation angle of energy from the
antenna should be:
a   more than 30 degrees but less than forty-five
b   less than 30 degrees
c   more than 45 degrees but less than ninety
d   90 degrees

**55-7-(a)**
A variation in received signal strength caused by slowly changing
differences in path lengths is called:
a   fading
b   absorption
c   fluctuation
d   path loss

**56-4-(d)**
The type of atmospheric layers which will best return signals to earth
are:
a   oxidised layers
b   heavy cloud layers
c   sun spot layers
d   ionised layers

**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

**58-3-(b)**
To reduce harmonic output from a transmitter, the following could be put
in the transmission line, as close to the transmitter as possible:
a   wave trap
b   low-pass filter
c   high-pass filter
d   band reject filter

**59-7-(a)**
The input impedance of an operational amplifier is generally:
a   very high
b   very low
c   capacitive
d   inductive

**60-1-(a)**
**In amateur radio service, a "modem":**
**a    translates digital signals to and from audio signals**
**b    monitors the demodulated signals**
**c    de-emphasises the modulated data**
**d    determines the modulation protocol**