01-6-(d)
An Amateur Station is quoted in the regulations as a station:
a for training new radio operators
b using amateur equipment for commercial purposes
c for public emergency purposes
d in the Amateur Service

02-5-(a)
Regardless of the mode of transmission used, all amateur stations must be equipped with:
a a reliable means for determining the operating radio frequency
b an overmodulation indicator
c a dummy antenna
d a power output meter

03-7-(a)
Anyone may be permitted by the qualified operator of an amateur radio station to:
a pass brief comments of a personal nature, provided no fees or other considerations are requested or accepted
b operate the station when the operator is called away
c send business traffic to any other station
d broadcast a music programme

04-5-(a)
This callsign could be that allocated to a New Zealand amateur radio operator:
a ZL2KMJ
b ZK-CFK
c ZM4432
d ZLGA

05-5-(b)
A General Amateur Operator Certificate of Competency:
a expires after 12 months
b contains the unique callsign(s) to be used by that operator
c is transferable to any member of the family
d gives licence for the transmission of radio waves

06-1-(a)
The Morse code signal "SOS" indicates that a station is:
a in grave and imminent danger and requires immediate assistance
b reporting a shipping hazard
c about to send an important message for payment
d about to go silent

07-6-(d)
The abbreviation "VHF" refers to radio spectrum between:
a 30 kHz and 300 kHz
b 300 kHz and 3 MHz
c 3 MHz and 30 MHz
d 30 MHz and 300 MHz

08-0-(d)
Amateur stations are often described as being "frequency agile". This means:
a operation is restricted to frequency modulation only
b operators can operate anywhere on a shared band
c a bandswitch is required on all transmitters
d operators can change frequency on a shared band to avoid interfering

09-6-(d)
The New Zealand amateur radio bandplans are:
a obligatory for all amateur radio operators
b only for testing and development purposes
c indicators of where distant stations can be worked
d recommended, all amateur radio operators should observe them

10-8-(d)
The term describing opposition to electron flow in a circuit is:
a current
b voltage
c power
d resistance

11-7-(a)
Four good electrical insulators are:
a glass, air, plastic, porcelain
b plastic, rubber, wood, carbon
c glass, wood, copper, porcelain
d paper, glass, air, aluminium

12-5-(a)
The voltage "two volts" is also:
a 2,000 mV
b 2,000 kV
c 2,000 uV
d 2,000 MV

13-4-(c)
The voltage to cause a current of 4.4 ampere to flow in a 50 ohm resistance is:
a 2220 volt
b 22.0 volt
c 220 volt
d 0.222 volt

14-3-(b)
A resistor with 10 volt applied across it and passing a current of 1 mA has a value of:
a 10 ohm
b 10 kilohm
c 100 ohm
d 1 kilohm

15-8-(c)
Two resistors are connected in parallel. One is 75 ohm and the other is 50 ohm. The total resistance of this parallel circuit is:
a 10 ohm
b 70 ohm
c 30 ohm
d 40 ohm

16-0-(d)
A 6 ohm resistor is connected in parallel with a 30 ohm resistor. The total resistance of the combination is:
a 8 ohm
b 24 ohm
c 35 ohm
d 5 ohm

17-1-(b)
Two resistors are in parallel. Resistor A carries twice the current of resistor B, which means that:
a B has half the resistance of A
b A has half the resistance of B
c the voltage across A is twice that across B
d the voltage across B is twice that across B

18-3-(b)
When two 1000 ohm 5 watt resistors are connected in parallel, they can dissipate a maximum total power of:
a 40 watt
b 10 watt
c 20 watt
d 5 watt

19-3-(a)
If two 10 ohm resistors are connected in series with a 10 volt battery, the battery load is:
a 5 watt
b 10 watt
c 20 watt
d 100 watt

20-8-(a)
The "rms voltage" of a sinewave signal is:
a 0.707 times the peak voltage
b half the peak voltage
c 1.414 times the peak voltage
d the peak-to-peak voltage

21-3-(c)
Two metal plates separated by air form a 0.001 uF capacitor. Its value may be changed to 0.002 uF by:
a making the plates smaller in size
b moving the plates apart
c bringing the metal plates closer together
d touching the two plates together

22-1-(c)
Two 20 uH inductances are connected in series. The total inductance is:
a 10 uH
b 20 uH
c 40 uH
d 80 uH

23-8-(b)
The correct colour coding for the earth wire in a flexible mains lead is:
a brown
b yellow and green
c blue
d white

24-4-(a)
The three leads from a PNP transistor are named the:
a collector, emitter, base
b collector, source, drain
c gate, source, drain
d drain, base, source

25-0-(b)
A varactor diode acts like a variable:
a resistance
b capacitance
c voltage regulator
d inductance

26-2-(c)
This semiconductor device has characteristics most similar to a triode valve:
a junction diode
b zener diode
c field effect transistor
d bipolar transistor

27-3-(d)
The following meter could be used to measure the power supply current drawn by a small hand-held transistorised receiver:
a a power meter
b an RF ammeter
c an electrostatic voltmeter
d a DC ammeter

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

29-7-(b)
In an HF station, the connection between the SWR bridge and the switch used for selecting between multiple antennas, is normally a:
a twisted pair cable
b coaxial cable
c quarter-wave matching section
d short length of balanced ladder-line

30-3-(a)
In a frequency modulation receiver, the output of this is connected to the mixer:
a the high frequency oscillator
b the frequency discriminator
c the intermediate frequency amplifier
d the speaker and/or headphones

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

32-4-(c)
If two receivers are compared, the more sensitive receiver will produce:
a more than one signal
b less signal and more noise
c more signal and less noise
d a steady oscillator drift

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

34-0-(c)
The tuning control of a superhet receiver changes the tuned frequency of the:
a audio amplifier
b IF amplifier
c local oscillator
d post-detector amplifier

35-0-(d)
A communications receiver provides a choice of four IF bandpass filters installed in it, one at 250 Hz, one at 500 Hz, one at 2.4 kHz, and one at 6 kHz. If you were listening to a single sideband transmission, you would use:
a 250 Hz
b 6 kHz
c 500 Hz
d 2.4 kHz

36-5-(b)
Front-end selectivity is provided by resonant networks both before and after the RF stage in a superhet receiver. This whole section of the receiver is often referred to as the:
a preamble
b preselector
c preamplifier
d pass-selector

37-1-(a)
In a frequency modulation transmitter, the microphone is connected to the:
a speech amplifier
b modulator
c power amplifier
d oscillator

38-9-(b)
In an single sideband transmitter, this is located between the mixer and the antenna:
a variable frequency oscillator
b linear amplifier
c balanced modulator
d radio frequency oscillator

39-6-(c)
The difference between DC input power and RF power output of a transmitter RF amplifier:
a radiates from the antenna
b is lost in the feedline
c is dissipated as heat
d is due to oscillating current

40-7-(a)
Harmonic frequencies are:
a at multiples of the fundamental frequency
b always lower in frequency than the fundamental frequency
c any unwanted frequency above the fundamental frequency
d any frequency causing TVI

41-0-(d)
Harmonics are to be avoided because they:
a cause damage to amateur equipment
b make your signal unreadable at other stations on that band
c cause possible interference to other users of that band
d cause possible interference to services using other bands

42-5-(b)
The capacitor value best suited for filtering the output of a 12 volt 1 amp DC power supply is:
a 100 pF
b 10,000 uF
c 10 nF
d 100 nF

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

44-7-(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

45-4-(d)
The standard frequency offset (split) for 2 metre repeaters in New Zealand is:
a plus 600 kHz below 147 MHz, minus 600 kHz on or above 147 MHz
b minus 5 MHz below 147 MHz, plus 5 MHz kHz on or above 147 MHz
c plus 5 MHz below 147 MHz, minus 5 MHz kHz on or above 147 MHz
d plus 600 kHz above 147 MHz, minus 600 kHz on or below 147 MHz

46-8-(c)
Many receivers have both RF and AF gain controls. These allow the operator to:
a vary the receiver frequency and AM transmitter frequency independently
b vary the low and high frequency audio gain independently
c vary the gain of the radio frequency and audio frequency amplifier stages independently
d vary the receiver's "real" and "absolute" frequencies independently

47-4-(c)
The "Q" signal "what is your location?" is:
a QRZ?
b QTC?
c QTH?
d QRL?

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

49-5-(b)
An instrument to check whether RF power in the transmission line is transferred to the antenna is:
a an antenna tuner
b a standing wave ratio meter
c a dummy load
d a keying monitor

50-9-(a)
Radio wave polarisation is defined by the orientation of the radiated:
a electric field
b magnetic field
c inductive field
d capacitive field

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

52-1-(a)
A half-wave antenna cut for 7 MHz can be used on this band without change:
a 15 metre
b 10 metre
c 20 metre
d 80 metre

53-4-(c)
The maximum radiation from a three element Yagi antenna is:
a in the direction of the reflector end of the boom
b at right angles to the boom
c in the direction of the director end of the boom
d parallel to the line of the coaxial feeder

54-5-(a)
That portion of HF radiation which is directly affected by the surface of the earth is called:
a ground wave
b local field wave
c inverted wave
d ionospheric wave

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

56-7-(b)
VHF or UHF signals transmitted towards a tall building are often received at a more distant point in another direction because:
a these waves are easily bent by the ionosphere
b these waves are easily reflected by objects in their path
c you can never tell in which direction a wave is travelling
d tall buildings have elevators

57-1-(b)
On an amateur receiver, unwanted signals are found at every 15.625 kHz. This is probably due to:
a **a low-frequency government station**
b **radiation from a nearby TV line oscillator**
c **a remote radar station**
d **none of these**

58-6-(c)
A band-pass filter will:
a **pass frequencies each side of a band**
b **attenuate low frequencies but not high frequencies**
c **attenuate frequencies each side of a band**
d **attenuate high frequencies but not low frequencies**

59-1-(b)
Television interference caused by harmonics radiated from an amateur transmitter could be eliminated by fitting:
a **a low-pass filter in the TV receiver antenna input**
b **a low-pass filter in the transmitter output**
c **a high-pass filter in the transmitter output**
d **a band-pass filter to the speech amplifier**

60-0-(d)
A "modem" is a:
a **modulation de-emphasis unit**
b **Morse demodulator**
c **MOSFET de-emphasis unit**
d **modulator/demodulator**