

RADIO AMATEUR EXAMINATION (RAE)

SAMPLE QUESTIONS FOR REVISION

1. This callsign could be allocated to an amateur operator in Malaysia:
 - a) HSI
 - b) 9VI
 - c) 9W2
 - d) 9M1
2. The callsign of an amateur radio class A licensee whose address is in Sarawak must use the prefix:
 - a) 9M8
 - b) 9M7
 - c) 9M6
 - d) 9M2
3. Define radio communications
 - a) the art of talking to another station
 - b) the art of communication by means of telephones
 - c) all communication by radio telephone
 - d) all communication by means of radio waves
4. Malaysia views on international regulatory matters are coordinated by the:
 - a) Malaysian Amateur Radio Transmitters Society (MARTS)
 - b) Malaysian Communications and Multimedia Commission (MCMC)
 - c) International Amateur Radio Union (IARU)
 - d) Prime Minister's Department
5. The prime document for the administration of the amateur service in Malaysia is the:
 - a) Radio Regulations, 1985
 - b) Broadcasting Act
 - c) Radio Amateur's Handbook
 - d) Multimedia Commission Act, 1998
6. How soon after you pass the Radio Amateur Examination (RAE) for class B amateur radio license may you transmit:
 - a) Immediately
 - b) 30 days after the test date
 - c) as soon as the MCMC grants you a license
 - d) as soon as you receive your license from the CMC
7. Administration of the amateur service in Malaysia is by:
 - a) Malaysian Amateur Radio Transmitters Society
 - b) Malaysian Communications and Multimedia Commission (MCMC)
 - c) Jabatan Telekom Malaysia
 - d) Syarikat Telekom Malaysia
8. If an amateur radio licensee is absent overseas, the base station may be used by:
 - a) Any member of the immediate family to maintain contact with only the licensee
 - b) Any amateur radio licensee but with consent
 - c) The immediate family to communicate with any amateur radio licensee
 - d) None of the above
9. An amateur station must be supervised by an amateur radio licensee:
 - a) Only when training another amateur
 - b) Whenever the station receiver is operated
 - c) Whenever the station is used for transmitting
 - d) At all times when operating
10. Amateur radio repeater frequencies in Malaysia are coordinated by:
 - a) The Malaysian Frequency Spectrum Advisory Group
 - b) Malaysian Amateur Radio Transmitters Society Repeater committee
 - c) Repeater committee
 - d) Malaysian Communications and Multimedia Commission (MCMC)
11. A person whose amateur radio class A license (9M2) has expired and which has not been renewed for more than 2 years, shall be required to:
 - a) Rewrite the Radio Amateur Operators Certificate examination
 - b) Rewrite the Regulation exam
 - c) Take a Morse Code test at 12 wpm
 - d) Take a Morse Code test at 5 wpm
12. The regulatory authority in Malaysia on amateur radio is the:
 - a) Malaysian Amateur Radio Transmitters Society
 - b) Malaysian Communications and Multimedia Commission (MCMC)
 - c) International Amateur Radio Union (IARU)
 - d) Prime Minister's Department
13. Which education qualification exempts the holder from the radio amateur examination:
 - a) Four credits in Sijil Pelajaran Malaysia subjects
 - b) Four passes in a University undergraduate subjects
 - c) A principle in Sijil Tinggi Pelajaran Malaysia Physics and Mathematics
 - d) There is no exemption for any education qualification

- 14 2 Malaysian amateur radio license classes are:
- a) General, Advances c) Class A, Class B
b) Novice, Technician d) Class M, Class W
- 15 To whom may an amateur radio station licensee sell amateur radio equipment:
- a) To any person interested in amateur radio
b) To any person who is possession of a Radio Dealers License or to a person who is in possession of a Amateur Radio License
c) To any person who is possession of a radio broadcast station license
d) To a person who has a foreign Citizen Band License
- 16 The Morse code qualifying requirements for a class A amateur radio license is
- a) 20 words per minute c) 10 words per minute
b) 12 words per minute d) 5 words per minute
- 17 Power supplies to RF power amplifiers should:
- a) be open wires
b) be AF filtered
c) be RF filtered
d) be inductively coupled
- 18 The value of a resistor to drop 100 volt with a current of 0.8 miliampere is:
- a) 125 ohm c) 1250 ohm
b) 125 kilohm d) 1.25 kilohm
- 19 If a current of 2 amperes flows through a 50-ohm resistor, what is the voltage across the resistor?
- a) 25 volts c) 100 volts
b) 52 volts d) 200 volts
- 20 The effective resistance of three 24 Ohm resistors connected in parallel is:
- a) 8 ohms b) 12 ohms
c) 36 ohms d) 72 ohms
- 21 An electric current passing through a wire will produce around the conductor:
- a) An electric field c) a superconductor
b) A magnetic field d) a semiconductor
- 22 The unit of impedance is the:
- a) ampere c) Henry
b) farad d) ohm
- 23 One kilohm is:
- a) 10 ohm c) 0.001 ohm
b) 0.01 ohm d) 1000 ohm
- 24 The watt is the unit of :
- a) power c) electromagnetic field strength
b) magnetic flux d) breakdown voltage
- 25 The unit of resistance is the:
- a) farad c) ohm
b) watt d) resistor
- 26 Radio wave polarization is defined by the orientation of the radiated:
- a) magnetic field b) electric field
c) inductive field d) capacitive field
- 27 The voltage drop across a germanium diode when conducting is about:
- a) 0.3V b) 0.6V
c) 0.7V d) 1.3V
- 28 A 50 hertz current in a wire means that:
- a) A potential difference of 50 volts exists across the wire
b) The current flowing in the wire is 50 amperes
c) The power dissipated in the wire is 50 watts
d) A cycle is completed 50 times in each second
- 29 Starting at a positive peak, how many times does a sine wave cross the zero axis in one complete cycle:
- a) 180 times c) 2 times
b) 4 times d) 360 times
- 30 What is a wave called that abruptly changes back and forth between two voltage levels and remains an equal time at each level?
- a) A sine wave c) a square wave
b) A cosine wave d) a sawtooth wave
- 31 What would be the most accurate way of determining the RMS voltage of a complex waveform?
- a) By using a grid dip meter
b) By measuring the voltage with a D'Arsonval meter
c) By using an absorption wavemeter
d) By measuring the heating effect in a known resistor
- 32 What are three good electrical conductors
- a) Copper, gold, mica
b) Gold, silver, wood
c) gold, silver, aluminium
d) copper, aluminium, paper

- 33 An isolating transformer is used to
- Ensure that faulty equipment connected to it will blow a fuse in the distribution board
 - Ensure that no voltage is developed between either output lead and ground
 - Ensure that no voltage is developed between the output leads
 - Step down the mains voltage to a safe value

- 34 What device is used to store electrical energy in an electrostatic field:
- A battery
 - A transformer
 - a capacitor
 - an inductor

- 35 What does a variable resistor or potentiometer do:
- Its resistance changes when AC is applied to it
 - It transforms a variable voltage into a constant voltage
 - Its resistance changes when its slide or contact is moved
 - To create an open circuit when there is too much current in a circuit

- 36 Which component can amplify a small signal using low voltages:
- PNP transistor
 - an electrolytic capacitor
 - A variable resistor
 - a multiple-cell battery

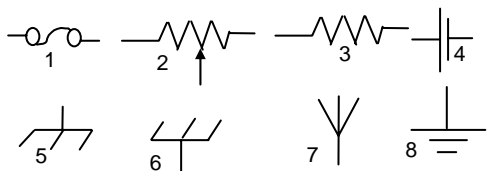


FIGURE N6-1

- 37 In figure N6-1, which symbol represents a fixed resistor:

- Symbol 2
- Symbol 3
- Symbol 4
- Symbol 5

- 38 In figure N6-1, which symbol represents a fuse

- Symbol 1
- Symbol 3
- Symbol 5
- Symbol 7

- 39 In figure N6-1, which symbol represents a single-cell battery

- Symbol 7
- Symbol 1
- Symbol 5
- Symbol 4

- 40 In figure N6-1, which symbol represents an earth ground:

- Symbol 2
- Symbol 5
- Symbol 6
- Symbol 8

- 41 In figure N6-1, which symbol represents an antenna
- Symbol 2
 - Symbol 3
 - Symbol 6
 - Symbol 7

- 42 In figure N6-2, which symbol represents a single-pole, single-throw switch

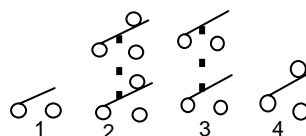


FIGURE N6-2

- Symbol 1
- Symbol 2
- Symbol 3
- Symbol 4

- 43 What does a capacitor do:

- It stores energy electrochemically and opposes a change in current
- It stores energy electrostatically and opposes a change in voltage
- It stores energy electromagnetically and opposes a change in current
- It stores energy electromechanically and opposes a change in voltage

- 44 The mains transformer in a transmitter is fitted with an internal screen. To minimize the possibility of introducing mains-borne interference it should be connected to:

- the chassis
- the VFO output
- the live side of the mains
- left floating

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

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

- 46 An absorption wavemeter is useful for:

- Checking exact transmission frequency
- Checking frequency drift
- Checking peak modulation index
- Checking for harmonic radiation

- 47 How does a spectrum analyzer differ from a conventional time-domain oscilloscope

- A spectrum analyzer measures ionospheric reflection; an oscilloscope displays electrical signals
- A spectrum analyser displays signals in the time domain; an oscilloscope displays signals in the frequency domain
- A spectrum analyzer displays signals in the frequency domain; an oscilloscope displays signals in the time domain
- A spectrum analyzer displays radio frequencies; an oscilloscope displays audio frequencies

- 48 How is an ammeter usually connected to a circuit under test
- In series with the circuit
 - in quadrature with the circuit
 - In parallel with the circuit
 - a phase with the circuit
- 49 What might happen if you switch a multimeter to measure resistance while you have it connected to measure voltage
- The multimeter would read half the actual voltage
 - It would probably destroy the meter circuitry
 - The multimeter would read twice the actual voltage
 - Nothing unusual would happen; the multimeter would measure the circuit's resistance
- 50 Which instrument would you use to measure electric current:
- an ohmmeter
 - a voltmeter
 - a wavemeter
 - an ammeter
- 51 What instrument can be used to determine the horizontal radiation pattern of an antenna
- a field-strength meter
 - a grid-dip meter
 - an oscilloscope
 - a signal tracer & an audio amplifier
- 52 An absorption wavemeter can be used to check for:
- Over-modulation
 - Receiver overloading
 - Band edge signals
 - Correct selection of harmonic from a multiplier circuit
- 53 Which of the following is NOT something you would determine with a spectrum analyzer
- The degree of isolation between the input and output ports of a 2-meter duplexer
 - Whether a crystal is operating on its fundamental or overtone
 - The speed at which a transceiver switches from transmit to receive when being used for packet radio
 - The spectral output of a transmitter
- 54 What can a logic probe indicate about a digital logic circuit
- a short-circuit fault
 - an open-circuit fault
 - the resistance between logic modules
 - the high & low logic states
- 55 The wavelength of a signal in free space with a frequency of 100 MHz is:
- 30mm
 - 3m
 - 0.3m
 - 30m
- 56 What does a frequency counter do
- It makes frequency measurements
 - It produces a reference frequency
 - It measures FM transmitter deviation
 - It generates broadband white noise
- 57 What does a dip-meter do
- It accurately indicates signal strength
 - It measures frequency accurately
 - It measures transmitter output power accurately
 - It gives an indication of the resonant frequency of a circuit
- 58 The following unit in a DC power supply performs a smoothing operation
- an electrolytic capacitor
 - a fuse
 - a crowbar
 - a full-wave diode bridge
- 59 Which of the following operating conditions of the power amplifier stage of a transmitter is likely to produce the highest harmonic content in the output waveform?
- Class C
 - Class AB
 - Class B
 - Class A
- 60 A mains operated DC power supply
- Converts DC from the mains into AC of the same voltage
 - Converts energy from the mains into DC for operating electronic equipment
 - Is a diode-capacitor device for measuring mains power
 - Is a diode-choked device for measuring inductance power
- 61 A low pass filter will:
- suppress sub-harmonics
 - reduce harmonics
 - always eliminate interference
 - improve harmonic radiation
- 62 A power supply is to power a solid-state transceiver. A suitable over-voltage protection device is a
- Crowbar across the regulator output
 - 100uF capacitor across the transformer output
 - fuse in parallel with the regulator output
 - zener diode in series with the regulator
- 63 AGC stands for:
- Amplified gain control
 - auxiliary gain cut-off
 - automatic ganging control
 - automatic gain control

- 64 Over driving a power amplifier will:
- give a high SWR
 - give minimum distortion on receive
 - generate excessive harmonics
 - minimize power output
- 65 A radio wave may follow two or more different paths during propagation and produce slowly-changing phase differences between signals at the receiver resulting in a phenomenon called
- absorption
 - baffling
 - fading
 - skip
- 66 The distance between the transmitter and the nearest point at which the received signal is received from ionospheric propagation is known as the
- skip distance
 - radiation distance
 - skip angle
 - skip zone
- 67 VHF and UHF bands are frequently used for satellite communication because
- Waves at these frequencies travel to & from the satellite relatively unaffected by the ionosphere
 - The Doppler frequency change caused by satellite motion is much less than at HF
 - Satellites move too fast for HF waves to follow
 - The Doppler effect would cause HF waves to be shifted into the VHF and UHF bands
- 68 A 'line of sight' transmission between two stations uses mainly the
- ionosphere
 - troposphere
 - sky wave
 - ground wave
- 69 When using voice, which of the following modes of transmissions required the least bandwidth?
- single sideband
 - amplitude modulation
 - frequency modulation
 - phase modulation
- 70 The sensitivity of a receiver can be degraded by:
- strong RF signals on a nearby frequency
 - removing all crystals
 - good RF filtering
 - incorrect adjustment of the volume control
- 71 Radio wave polarisation is defined by the orientation of the radiated
- magnetic field
 - electric field
 - inductive field
 - capacitive field
- 72 For long distance propagation, the radiation angle of energy from the antenna should be:
- less than 30 degrees
 - more than 30 degrees but less than 45
 - more than 45 degrees but less than 90
 - 90 degrees
- 73 The ability of a receiver to separate signals close in frequency is called its:
- noise figure
 - sensitivity
 - bandwidth
 - selectivity
- 74 What is the primary source of noise that can be heard in a VHF/UHF-band receiver with an antenna connected?
- receiver front-end noise
 - man-made noise
 - atmospheric noise
 - detector noise
- 75 Which of the following antenna arrangements is least likely to radiate harmonics:
- a dipole fed with coaxial cable
 - a dipole fed with balanced feeder
 - an inverted L-Marconi with vertical feeder
 - a trap dipole
- 76 A stage in a receiver with input and output circuits tuned to the received frequency is the :
- RF amplifier
 - local oscillator
 - audio frequency amplifier
 - detector
- 77 A communication receiver may have several IF filters of different bandwidths. The operator selects one to:
- improve the S-meter readings
 - improve the receiver sensitivity
 - improve the reception of different types of signal
 - increase the noise received
- 78 To obtain high frequency stability in a transmitter, the VFO should be:
- Run from a non-regulated AC supply
 - powered from a regulated DC supply
 - In a plastic box
 - able to change frequency with temperature
- 79 The side of quad antenna is:
- a quarter wavelength
 - a half wavelength
 - three quarter of a wavelength
 - a full wavelength
- 80 The driver stage of a transmitter is located:
- Before the power amplifier
 - with the frequency multiplier
 - Between oscillator and buffer
 - after the output low-pass filter circuit
- 81 The process of modulation allows
- Information to be impressed on to a carrier
 - Information to be removed from a carrier
 - Voice and Morse code to be combined
 - None of these

- 82 The output power rating of a linear amplifier is specified by the
- peak DC input power
 - mean AC input power
 - peak envelope power
 - unmodulated carrier power

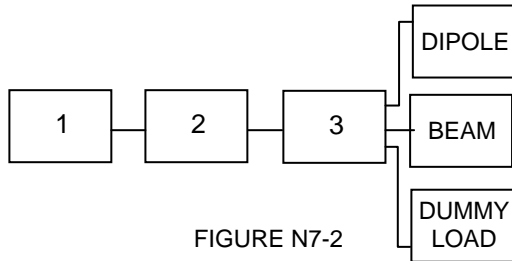


FIGURE N7-2

- 83 In figure N7-2, if block 1 is a transceiver and block 3 is an antenna switch, what is block 2
- a terminal-node switch
 - an SWR meter
 - a dipole antenna
 - a high-pass filter

- 84 Harmonic frequencies are
- Always lower in the frequency than the fundamental frequency
 - At multiples of the fundamental frequency
 - Any unwanted frequency above the fundamental frequency
 - Any frequency causing TVI

- 85 A parasitic oscillation
- Is an unwanted signal developed in a transmitter
 - Is generated by parasitic elements of a Yagi beam
 - Does not cause any radio interference
 - Is produced in a transmitter oscillator stage

- 86 Parasitic oscillations can cause interference. They are
- Always the same frequency as the mains supply
 - Always twice the operating frequency
 - Not related to the operating frequency
 - Three times the operating frequency

- 87 Unwanted signals from a radio transmitter which cause harmful interference to other users are known as
- Rectified signals
 - Re-radiation signals
 - Reflected signals
 - Harmonic signals and spurious signals

- 88 To reduce the harmonic output from a high frequency transmitter, the following filter is usually installed at the transmitter
- band pass
 - low pass
 - high pass
 - active filter

- 89 Test should be made on one's equipment to check for harmonic radiation. These should be
- from time to time
 - every 6 months
 - at the time of renewal of the license
 - weekly

- 90 A harmonic is
- a whole number multiple of a frequency
 - a sub multiple of a frequency
 - any frequency greater than the fundamental frequency
 - any frequency causing interference

- 91 Which of the following sets of components are used to make RF filters?
- Diodes and resistors
 - Zener diodes and inductors
 - LEDs and capacitors
 - Inductors capacitors

- 92 The correct phonetic code for the callsign 9M2MRC is
- Nine Mike Two Mike Romeo China
 - Nine Mike Two Mike Romeo Charlie
 - Nine Mexico Two Mexico Radio Charlie
 - Nine Mexico Two Mexico Russia China

- 93 QRT means
- close down
 - stand by
 - fading
 - low power

- 94 Define the mode F3E
- phase-modulated telephony
 - double-sideband telephony
 - single-sideband, suppressed carrier, telephony
 - frequency-modulated telephony

- 95 Frequency modulation using voice is termed:
- F1A
 - F2A
 - F3C
 - F3E

- 96 The correct phonetic code for the callsign 9M2RUK is
- Nine Mike Two Romero Uniform Kilo
 - Nine Mike Two Radio Uganda Kilo
 - Nine Mexico Two Radio Ugly Kilo
 - Nine Mexico Two Russia Uganda Korea

- 97 In order to minimize splatter, the audio bandwidth should be restricted to:
- a) 1 kHz b) 1.5 kHz
c) 2 kHz d) 3 kHz
- 98 Earth return circuits should always be:
- a) high impedance b) highly reactive
c) low impedance d) inductive
- 99 What is a folded dipole antenna
- a) a dipole one-quarter wavelength long
b) a type of ground-plane antenna
c) a dipole whose ends are connected by a one-half wavelength piece of wire
d) a hypothetical antenna used in theoretical discussions to replace the radiation resistance
- 100 What is meant by antenna gain
- a) the numerical ratio relating the radiated signal strength of an antenna to that of another antenna
b) the numerical ratio of the signal in the forward direction to the signal in the back direction
c) the numerical ratio of the amount of power radiated by an antenna compared to the transmitter output power
d) the final amplifier gain minus the transmission-line losses (including any phasing lines present)
- 101 A neighbour using a TV set top antenna complains of interference when you are transmitting at VHF. As a first step to eliminating this problem you could suggest:
- a) better coaxial cable on their antenna
b) they use a preamplifier
c) they use a roof mounted antenna
d) their set is no good
- 102 Which of the following does not rely on a magnetic field:
- a) a dynamic microphone
b) a loudspeaker
c) a carbon microphone
d) a transformer
- 104 The main purpose of a Varactor Diode is:
- a) tuning b) rectification
c) voltage regulation d) display
- 105 An antenna which transmits well in one direction is a
- a) dipole with a reflector only
b) quarterwave grounder vertical
c) a yagi
d) none of the above
- 106 The purpose of a balun in a transmitting antenna system is to
- a) balance harmonic radiation
b) reduce unbalanced standing waves
c) protect the antenna system from lightning strikes
d) match unbalanced and balanced transmission lines
- 107 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
- 108 A noise blanker on a receiver is most effective to reduce:
- a) 50 Hz power supply hum
b) noise originating from the mixer stage of the receiver
c) ignition noise
d) noise originating from the RF stage of the receiver
- 109 What does an antenna tuner do
- a) it matches a transceiver output impedance to the antenna system impedance
b) it helps a receiver automatically tune in stations that are far away
c) it switches an antenna system to a transceiver when sending and to a receiver when listening
d) it switches a transceiver between different kinds of antennas connected to one feed line
- 110 How is a Yagi antenna constructed
- a) two or more straight, parallel elements are fixed in line with each other
b) two or more square or circular loops are fixed in line with each other
c) two or more square or circular loops are stacked inside each other
d) a straight element is fixed in the center of three or more elements that angle toward the ground
- 111 When operating a mobile HF set at home from a battery supply and using the base antenna there is no interference problem. When using the same arrangement but with an earthed battery charger connected interference occurs on an electronic organ. The possible cause is:
- a) the production of sub-harmonics at the transmitter
b) very strong received signal
c) poor RF earthing
d) that the RF earthing is too good

- 112 Yagi antenna is said to have a power gain over a dipole antenna for the same frequency band because
- it radiates more power than a dipole
 - more powerful transmitters can use it
 - it concentrates the radiation in one direction
 - it can be used for more than one band
- 113 The bandwidth of a beam antenna is dependent on:
- radiation resistance of the dipole
 - spacing of directors and reflectors
 - feed cable impedance
 - propagation conditions
- 114 What is a loop antenna
- a large circularly-polarised antenna
 - a small coil of wire tightly wound around a toroidal ferrite core
 - several turns of wire wound in the shape of a large open coil
 - any antenna coupled to a feed line through an inductive loop of wire
- 115 What device is used in place of an antenna during transmitter tests so that no signal is radiated
- an antenna matcher
 - a dummy load
 - a low-pass filter
 - a decoupling resistor
- 116 What phenomenon has the most effect on radio communication beyond ground-wave or line-of-sight ranges
- solar activity
 - lunar tidal effects
 - the F1 region of the ionosphere
 - the F2 region of the ionosphere
- 117 When a signal travels in a straight line from one antenna to another, what is this called
- line-of-sight propagation
 - knife-edge diffraction
 - straight line propagation
 - tunnel ducting
- 118 An antenna which transmits equally well in all compass directions is a
- dipole with a reflector only
 - quarterwave grounded vertical
 - dipole with director only
 - half-wave horizontal dipole
- 119 What pattern is desirable for a direction-finding antenna
- one which is non-cardioids
 - one with good front-to-back and front-to-side ratios
 - one with good top-to-bottom and side-to-side ratios
 - one with shallow nulls
- 120 To check for harmonics in a radiated signal, which of the following could be used?
- an SWR meter
 - an absorption wave meter
 - a digital frequency meter
 - an AVO meter
- 121 Radio wave polarisation is defined by the orientation of the radiated:
- magnetic field
 - electric field
 - inductive field
 - capacitive field
- 122 For long distance propagation, the radiation angle of energy from the antenna should be
- less than 30 degrees
 - more than 30 degrees but less than 45
 - more than 45 degrees but less than 90
 - 90 degrees
- 123 A band pass filter following a VHF transmitter will:
- stop all transmitting frequencies
 - allow all harmonics to be radiated
 - allow all sub-harmonics to be radiated
 - pass the desired frequency range with minimum loss
- 124 The ionosphere layer mainly responsible for long distance communication at HF is:
- D
 - E
 - F2
 - F1
- 125 High frequency long-distance propagation is most dependent on
- ionospheric reflection
 - tropospheric reflection
 - ground reflection
 - inverted reflection
- 126 A low pass filter will
- suppress sub-harmonics
 - reduce harmonics
 - always eliminate interference
 - improve harmonic radiation
- 127 To prevent unwanted radiation in the shack, RF connections between units should be by
- open wire feeder
 - good quality coaxial cable
 - bell wire
 - mains type cable
- 128 What is the proper procedure for suppressing electrical noise in a mobile transceiver
- apply shielding and filtering where necessary
 - insulate all plate sheet metal surfaces from each other
 - apply antistatic spray liberally to all non-metallic surfaces
 - install filter capacitors in series with all DC wiring

- 129 The resonant frequency of a tuned circuit can be checked by:
- a DC Voltmeter
 - a DIP Oscillator
 - a Digital Frequency Meter
 - an Ohm-Meter
- 130 How can alternator whine be minimized
- by connecting the radio's power leads to the battery by the longest possible path
 - by connecting the radio's power leads to the battery by the shortest possible path
 - by installing a high-pass filter in series with the radio's DC power lead to the vehicle's electrical system
 - by installing filter capacitors in series with the DC power lead
- 131 A corroded connector on a neighbour's TV receiving antenna may cause:
- unwanted mixing products due to it exhibiting diode properties
 - mains rectification
 - enhanced signal reception due to its filtering properties
 - increased amplification
- 132 What is the proper way to break into a conversation on a repeater
- wait for the end of a transmission and start calling the desired party
 - shout, "break, break!" to show that you're eager to join the conversation
 - turn on a amplifier and override whoever is talking
 - say your callsign during a break between transmissions
- 133 What is a digipeater
- a packet-radio station that retransmits only data that is marked to be retransmitted
 - a packer-radio station that retransmits any data that it receives
 - a repeater that changes audio signals to digital data
 - a repeater built using only digital electronics parts
- 134 When calling a station, it is good practice to:
- put your callsign first
 - use your callsign only
 - put the callsign of the station being called first
 - use the callsign of other station only
- 135 When should you use simplex operation instead of a repeater?
- when the most reliable communications are needed
 - when a contact is possible without using a repeater
 - when an emergency telephone call is needed
 - when you are traveling and need some local information
- 136 The equipment at an amateur station should be so designed, constructed or maintained so that:
- it does not cause undue interference with any wireless telegraphy
 - it causes interference with any wireless telegraphy
 - it will transmit automatically
 - it operates outside the specified bands
- 137 If you are talking to a station using a repeater, how would you find out if you could communicate using simplex instead?
- see if you can clearly receive the station on the repeater's input frequency
 - see if you can clearly receive the station on a lower frequency band
 - see if you can clearly receive a more distant repeater
 - see if a third station can clearly receive both of you
- 138 What is the meaning of the procedural signal 'CQ'?
- "Call on the quarter hour"
 - "New antenna is being tested" (no station should answer)
 - "only the called station should transmit"
 - "calling any station"
- 139 What is the purpose of repeater operation
- to cut your power bill by using someone else's higher power system
 - to help mobile and low-power stations extend their usable range
 - to transmit signals for observing propagation and reception
 - to communicate with station in services other than amateur
- 140 A band pass filter following a VHF transmitter will:
- stop all transmitting frequencies
 - allow all harmonics to be radiated
 - allow all sub-harmonics to be radiated
 - pass the desired frequency range with minimum loss
- 141 Spurious oscillations may be caused by:
- self resonance of a carbon resistor
 - self resonance in diode
 - self resonance of an RF choke
 - damping
- 142 A spurious transmission from a transmitter is
- an unwanted emission unrelated to the output signal frequency
 - an unwanted emission that is harmonically related to the modulating audio frequency
 - generated at 50Hz
 - the main part of the modulated carrier

- 143 A band pass filter will
- pass frequencies each side of a band
 - attenuate low frequencies but not high
 - attenuate frequencies each side of a band
 - attenuate high frequencies but not low
- 144 The correct order for callsign in a callsign exchange at the start and end of a transmission is
- the other callsign followed by your own callsign
 - your callsign followed by the other callsign
 - your own callsign, repeated twice
 - the other callsign, repeated twice
- 145 If the VFO of a transmitter is subject to varying temperatures, this might cause:
- chrip
 - drift
 - harmonic generation
 - no problems
- 146 A signal report of '5 and 9' indicates
- very low intelligibility but good signal strength
 - perfect intelligibility but very low signal strength
 - perfect intelligibility, high signal strength
 - medium intelligibility and signal strength
- 147 At the end of the QSO, you say the following
- 73s
 - 73s and clear on the frequency
 - over and out
 - goodnight
- 148 The standard frequency offset (split) for 70 cm repeaters in Malaysia is
- plus 600 kHz
 - minus 500 kHz
 - minus 5 MHz
 - plus 5 MHz
- 149 What kind of amateur station simultaneously retransmits the signals of other stations on a different channel
- repeater station
 - space station
 - telecommand station
 - relay station
- 150 To prevent annoying other users on a band, a transmitter should always be tuned initially:
- on a harmonic
 - into an antenna
 - into a dummy load
 - on a dipole
- 151 Why should I keep a log if the MCMC doesn't require it
- to help with your reply, if MCMC request information on who was control operator of your station for a given date and time
 - logs provide information (callsigns, dates & times of contacts)
 - loges are necessary to accurately verify contacts made weeks, months or years earlier, especially when completing QSL cards
 - all of these choices
- 152 What information is normally contained in a station log
- date and time of contact
 - band and/or frequency of the contact
 - callsign of station contacted and the RST signal report given
 - all of these choices
- 153 What is an amateur station called that transmits communications for the purpose of observation of propagation and reception
- a beacon
 - a repeater
 - an auxiliary station
 - a radio control station
- 154 The only general call allowed from an amateur station is:
- a news bulletin
 - a third party call
 - a CQ call
 - on VHF
- 155 When may you use your amateur station to transmit an 'SOS' or 'MAYDAY'
- never
 - only at specific times (at 15 and 30 minutes after the hour)
 - in a life or property-threatening emergency
 - when the National Weather Service has announced a severe weather watch
- 156 When making a CQ call it is good practice to:
- use a frequency occupied by a weak station
 - always use CW
 - only call DX stations
 - check that the frequency is clear before starting
- 157 What is the proper way to interrupt a repeater conversation to signal a distress call
- say 'BREAK' twice, then your callsign
 - say 'HELP' as many times as it takes to get someone to answer
 - say 'SOS', then your callsign
 - say 'EMERGENCY' three times
- 158 What is the most important accessory to have for a hand-held radio in an emergency
- an extra antenna
 - a portable amplifier
 - several sets of charged batteries
 - a microphone headset for hands-free operation
- 159 A signal report of "5 and 1" indicates
- very low intelligibility but good signal strength
 - perfect intelligibility but very low signal strength
 - perfect intelligibility, high signal strength
 - medium intelligibility and signal strength

- 160 If you are using a language besides English to make a contact, what language must you use when identifying your station
- the language being used for the contact
 - the language being used for the contact, provided the US has a third-party communications agreement with that country
 - English
 - Any language of a country that is a member of the International Telecommunication Union
- 161 What is one reason to avoid using 'cute' phrases or word combinations to identify your station
- they are not easily understood by non-English-speaking amateurs
 - they might offend English-speaking-amateurs
 - they do not meet FCC identification requirements
 - they might be interpreted as codes or ciphers intended to obscure the meaning of your identification
- 162 When are you prohibited from helping a station in distress
- when that station is not transmitting on amateur frequencies
 - when the station in distress offers no callsign
 - you are not ever prohibited from helping any station in distress
 - when the station is not another amateur station
- 163 The 'squelch' or 'muting' circuitry on a VHF receiver
- inhibits the audio output unless a station is being received
 - compresses incoming voice signals to make them more intelligible
 - reduces audio burst noise due to lightning emissions
 - reduces the noise on incoming signals
- 164 A braid-breaking choke in a TV antenna down load will block:
- all AC signals
 - out phase interfering signals
 - in phase interfering signals
 - mains hum
- 165 When operating at HF, interference is caused on a TV. The most likely route for the interfering signal is:
- via the earth
 - through the transmitter power supply
 - by the TV antenna coaxial cable screen and/or IF stages
 - by frequency multiplication in free space
- 166 Prior to transmitting a licensed operator should always
- check earthing
 - check antennas
 - check power supplies
 - listen to check whether the frequency is clear
- 167 When using a repeater, priority should be given to:
- stations operating mobile
 - DX stations
 - members of the local repeater group
 - base stations
- 168 To reduce strong signals from a 21 MHz transmitter reaching a TV via antenna down lead, one could fit:
- a high pass filter in the TV down lead
 - a low pass filter in the TV down lead
 - a UHF amplifier in the TV down lead
 - a band reject filter at the TV channel frequency
- 169 A good dummy load for RF is constructed from:
- light bulbs
 - a column of water
 - wire wound resistors
 - non-reactive resistors
- 170 Which of the following components could be attached to a moving coil meter in an attempt to measure power?
- resistor
 - thermistor
 - thermocouple
 - thimble
- 171 The standard frequency offset (split) for 70 cm repeaters in New Zealand is plus or minus
- 600 kHz
 - 1 MHz
 - 2 MHz
 - 5 MHz
- 172 When transmitting Morse code, key clicks can be prevented by a
- resistor in series with the key, and a choke across the key contacts
 - choke in series with the key, and a capacitor across the key contacts
 - choke across the key contacts, and a capacitor in series with the key
 - capacitor and choke in series with the key contacts
- 173 In the RST code, which of the following represents a perfectly readable signal:
- R1
 - S5
 - R5
 - S9
- 174 News bulletins maybe broadcast by an amateur radio station
- for common interest of all listeners
 - for the direct interest of all radio amateurs
 - for the purpose of advertising goods for sale
 - for the benefit of other radio stations
- 175 In a CW contact WX refers to:
- working conditions
 - wife
 - weather
 - type of antenna

- 176 How often must the callsign of an amateur radio licensee be given on repeater operations
- at least once every fifteen minutes
 - at least once during each separate transmission
 - at least once every five minutes
 - at the beginning and end of every transmission
- 177 Where the MCMC has allocated certain Amateur bands to be used on a shared basis, amateur radio stations
- who use the frequency first have the right to use such frequency
 - shall interfere with those stations to get them to change frequency
 - shall not cause any interference to such stations
 - shall request the other station to change frequency
- 178 It is not a good practice to:
- use double insulated cable on EHT circuits
 - use a separate RF earth
 - use a gas pipe for the earth connection
 - have safety switches
- 179 The priority on usage of any amateur radio repeater is
- base station to base station
 - portable station to mobile station
 - mobile station to mobile station
 - answer b & c above
- 180 What is the activity known as fox hunting
- amateurs using receivers and direction-finding techniques attempt to locate a hidden transmitter
 - amateurs using transmitting equipment and direction-finding techniques attempt to locate a hidden receiver
 - amateurs helping the government track radio-transmitter collars attached to animals
 - amateurs assemble stations using generators and portable antennas to test their emergency communications skills
- 181 Which of the following types of stations may normally transmit only one-way communications
- repeater station
 - beacon station
 - HF station
 - VHF station
- 182 Where can the official list of prohibited obscene and indecent words be found
- there is no public list of prohibited obscene and indecent words; if you believe a word is questionable, don't use it in your communications
 - the list is maintained by CMC
 - the list is international and is maintained by IARU
 - the list is in the 'public domain' and can be found in all amateur study guides and MARTS homepage
- 183 Why should you pause briefly between transmissions when using a repeater
- to check the SWR of the repeater
 - to reach for pencil and paper for third-party communications
 - to listen for anyone wanting to break in
 - to dial up the repeater's autopatch
- 184 What does a very high SWR reading mean
- the antenna is not tuned, or there may be an open or shorted connection somewhere in the feed line
 - the signals coming from the antenna are unusually strong, which means very good radio conditions
 - the transmitter is putting out more power than normal, showing that it is about to go bad
 - there is a large amount of solar radiation, which means very poor radio conditions
- 185 How much electrical current flowing through the human body will probably be fatal
- as little as 1/10 of an ampere
 - approximately 10 amperes
 - more than 20 amperes
 - current through the human body is never fatal
- 186 What could happen to your transceiver if you replace its blown 5 amp AC line fuse with a 30 amp fuse
- a 30-amp fuse would better protect your transceiver from using too much current
 - the transceiver would run cooler
 - the transceiver could use more current than 5 amps and a fire could occur
 - the transceiver would not be able to produce as much RF output
- 187 How can amateur station equipment best be protected from lightning damage
- use heavy insulation on the wiring
 - never turn off the equipment
 - disconnect the ground system from all radios
 - disconnect all equipment from the power lines and antenna cables
- 188 Which of the following is the best way to install your antenna in relation to overhead electric power lines
- always be sure your antenna wire is higher than the power line, and crosses it at a 90-degree angle
 - always be sure your antenna and feed line are well clear of any power lines
 - always be sure your antenna is lower than the power line, and crosses it at a small angle
 - only use vertical antennas within 100 feet of a power line
- 189 'VOX' stands for
- volume operated extension speaker
 - variable oscillator transmitter
 - voice operated transmit
 - voice operated expander

- 190 The figure in a receiver's specifications which indicates its sensitivity is the
- bandwidth of the IF in kilohertz
 - signal plus noise to noise ratio
 - audio output in watts
 - number of RF amplifiers
- 191 The abbreviation AGC means:
- attenuating gain capacitor
 - anode-grid capacitor
 - automatic gain control
 - amplified grid conductance
- 192 A station that is intended to be operated while it is in motion or while it is stationary at an unspecified place is called
- a removable radio station
 - an amateur radio station
 - a mobile station
 - a portable station
- 193 A station that is operated from the place that is specified in the license is called:
- a specified amateur radio station
 - a base station
 - a mobile station
 - a portable station
- 194 Define Peak Envelope Power
- means power supplied to an antenna by a radio receiver in a condition of no modulation
 - means the average power supplied to the antenna transmission lines by a transmitter during one radio-frequency cycle at the highest crest of the modulation envelope taken under conditions of normal operation
 - means the average power that is supplied to the antenna transmission lines in a condition of no modulation
 - means the average power that is supplied to the antenna in a condition where such power does not create a danger to life
- 195 Identify the correct statements
- All equipment should be controlled by one master switch, the position of which should be known to others in the house or club
 - All equipment should be properly connected to a good and permanent earth
 - PVC water main pipes are commonly used as permanent earth
 - Indicator lamps should be installed showing that the equipment is live
 - Indicator lamps should be clearly visible at the operating and test position
 - Faulty indicator lamps should be replaced immediately
 - Filament lamps are more reliable than gas-filled (neon) lamps
 - Antennas should always be connected to mains or other hot source
- i, ii & iv
 - ii, iii & v
 - v, vi & vii
 - iii, vii & viii
- 196 Which of the following is NOT an important reason to have a good station ground
- to reduce the cost of operating a station
 - to reduce electrical noise
 - to reduce interference
 - to reduce the possibility of electric shock
- 197 For your safety, before checking a fault in a mains operated power supply unit, first
- short the leads of the filter capacitor
 - turn off the power and remove the power plug
 - check the action of the capacitor bleeder resistance
 - remove and check the fuse in the power supply
- 198 Wires carrying high voltages in a transmitter should be well insulated to avoid
- short circuits
 - overheating
 - over modulation
 - SWR effects
- 199 The purpose of using three wires in the mains power cord and plug on amateur radio equipment is to
- make it inconvenient to use
 - prevent the chassis from becoming live in case of an internal short to the chassis
 - prevent the plug from being reversed in the wall outlet
 - prevent short circuits
- 200 When switching on the power to your transmitter, for safety reasons ensure that
- the other callsign followed by your own callsign
 - you callsign followed by the other callsign
 - your own callsign, repeated twice
 - the other callsign, repeated twice
- 201 'RIT' stands for
- receiver interference transmitter
 - range independent transmission
 - receiver incremental tuning
 - random interference tester
- 202 What is the advantage in using the International telecommunication Union (ITU) phonetic alphabet when identifying your station?
- the words are internationally recognized substitutes for letters
 - there is no advantage
 - the words have been chosen to be easily pronounced by Asian cultures
 - it preserves traditions begun in the early days of Amateur Radio

- 203 To reduce energy from a HF transmitter getting into a television receiver, the following could be placed in the TV antenna lead as close to the TV as possible
- a) active filter c) high pass filter
b) low pass filter d) band reject filter
- 204 The following should always be included as a standard protection device in any power supply
- a) a saturating transformer
b) a fuse in the mains lead
c) a zener diode bridge limiter
d) a fuse in the filter capacitor negative lead
- 205 For equipment safety, before switching on your amateur radio equipment, check that the equipment is connected to
- a) an unregulated power supply unit
b) an antenna or a dummy load
c) check that your license is valid
d) answer a & b above
- 206 Two 10K Ohm resistors are connected in parallel across a 5V DC supply. Total current taken is:
- a) 5uA
b) 1mA
c) 0.5mA
d) 1A
- 207 A 50 Ohm dummy loads are made from eleven 560 Ohm carbon resistors each of 5W rating. Total safe power that can be dissipated is:
- a) 0.5W b) 5.0W
c) 27.5W d) 55W
- 208 When monitoring the frequency of an un-modulated carrier, the readout of a digital frequency counter should show:
- a) the carrier frequency plus the number of significant harmonics present
b) how many sidebands there are
- c) nothing
d) the constant carrier frequency
- 209 At 3.5MHz, a wire 40 meters long corresponds to:
- a) a quarter wavelength
b) half wavelength
c) one wavelength
d) two wavelength
- 210 You can operate this number of identical lamps, each drawing a current of 250 mA, from a 5A supply:
- a) 50 b) 30
c) 20 d) 5
- 211 A superheat receiver, with an IF at 500 kHz, is receiving a 14 MHz signal. The local oscillator frequency is:
- a) 14.5 MHz b) 19 MHz
c) 500 KHz d) 28 MHz
- 212 The coaxial cable from an SWR meter to an antenna at HF develops a fault so that no power reaches the antenna. The SWR meter will read:
- a) zero b) 1:1
c) high d) very low
- 213 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

Sample RAE ASTRA Answer

1	C	46	D	91	D	136	A	181	B
2	A	47	C	92	B	137	A	182	A
3	D	48	A	93	A	138	D	183	C
4	B	49	B	94	D	139	B	184	A
5	D	50	D	95	D	140	D	185	A
6	C	51	A	96	A	141	C	186	C
7	B	52	D	97	D	142	A	187	D
8	B	53	C	98	C	143	C	188	B
9	C	54	D	99	C	144	A	189	B
10	D	55	C	100	C	145	B	190	B
11	C	56	A	101	A	146	C	191	C
12	B	57	D	102	A	147	B	192	C
13	D	58	A	103	C	148	C	193	B
14	C	59	A	104	B	149	A	194	A
15	B	60	A	105	C	150	C	195	D
16	B	61	B	106	D	151	D	196	A
17	C	62	????	107	C	152	B	197	B
18	B	63	D	108	D	153	A	198	A
19	C	64	C	109	A	154	B	199	B
20	A	65	C	110	A	155	C	200	A
21	B	66	A	111	C	156	D	201	C
22	D	67	A	112	C	157	A	202	A
23	D	68	D	113	B	158	C	203	C
24	A	69	A	114	C	159	B	204	B
25	C	70	A	115	B	160	C	205	D
26	B	71	B	116	A	161	A	206	B
27	A	72	A	117	A	162	C	207	D
28	D	73	D	118	B	163	A	208	A
29	C	74	A	119	B	164	A	209	B
30	C	75	B	120	B	165	C	210	C
31	D	76	A	121	B	166	D	211	A
32	C	77	C	122	A	167	A	212	C
33	B	78	B	123	D	168	B	213	A
34	C	79	A	124	B	169	D		
35	C	80	A	125	A	170	A		
36	A	81	A	126	B	171	D		
37	B	82	C	127	B	172	B		
38	A	83	B	128	A	173	B		
39	D	84	B	129	B	174	B		
40	D	85	A	130	B	175	B		
41	D	86	C	131	A	176	B		
42	B	87	D	132	D	177	C		
43	D	88	B	133	A	178	C		
44	A	89	A	134	C	179	D		
45	A	90	A	135	B	180	A		

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