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Spectrum Management and Telecommunications

Radiocommunication Information Circular

Basic Qualification Question Bank for Amateur Radio Operator Certificate Examinations

Aussi disponible en français - CIR-7

Canada

Radiocommunication Information Circulars are issued for the guidance of those engaged in radiocommunications in Canada. The information contained in these circulars is subject to change without notice. It is therefore suggested that interested persons consult the nearest district office of Industry Canada for additional details. While every reasonable effort has been made to ensure accuracy, no warranty is expressed or implied. As well, these circulars have no status in law.

Comments and suggestions may be directed to the following address:

Industry Canada
Radiocommunications and
Broadcasting Regulatory Branch
300 Slater Street
Ottawa, Ontario
K1A 0C8

Attention: DOSP

via e-mail: spectrum_pubs@ic.gc.ca

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http://strategis.ic.gc.ca/spectrum

Foreword

This circular contains the questions that will be used effective April 1, 2007, for making *Basic Qualification* examinations for the *Amateur Radio Operator Certificate*. The correct choice of the four suggested answers appears in brackets following each question identifier.
i.e. A-001-01-01 **(4)**

Candidates for amateur radio operator certificate examinations are encouraged to contact the following amateur radio organizations for information on study material.

Radio Amateurs of Canada
720 Belfast Road, Suite 217
Ottawa, Ontario
K1G 0Z5
www.rac.ca

Instructions for examiners are contained in Radiocommunication Information Circular RIC-1, *Guide for Examiners Accredited to Conduct Examinations for the Amateur Radio Operator Certificate*.

Radio Amateur du Québec inc.
4545 Pierre-de-Coubertin Avenue
C.P. 1000, Succursale M
Montréal, Quebec
H1V 3R2
www.raqi.qc.ca

B-001-01-01 (1)
Authority to make "Radiocommunication Regulations" is derived from:
the Radiocommunication Act
the General Radio Regulations
the Standards for the Operation of Radio Stations in the Amateur Radio Service
the ITU Radio Regulations

B-001-01-02 (2)
Authority to make "Standards for the Operation of Radio Stations in the Amateur Radio Service" is derived from:
the General Radio Regulations
the Radiocommunication Act
the Standards for the Operation of Radio Stations in the Amateur Radio Service
the ITU Radio Regulations

B-001-01-03 (2)
The Department that is responsible for the administration of the Radiocommunication Act is:
Transport Canada
Industry Canada
Communications Canada
National Defense

B-001-01-04 (4)
The "amateur radio service" is defined in:
the Radiocommunication Act
the Standards for the Operation of Radio Stations in the Amateur Radio Service
the General Radio Regulations
the Radiocommunication Regulations

B-001-02-01 (3)
What must you do to notify your mailing address changes?
Telephone your local club, and give them your new address
Contact an accredited examiner and provide details of your address change
Contact Industry Canada and provide details of your address change
Write amateur organizations advising them of your new address, enclosing your licence

B-001-02-02 (4)
An Amateur Radio Operator Certificate is valid for:
five years
three years
one year
for life

B-001-02-03 (3)
Whenever a change of address is made:
Industry Canada must be notified within 14 days of operation at the new address
the station shall not be operated until a change of address card is forwarded to Industry Canada
Industry Canada must be advised of any change in postal address
within the same province, there is no need to notify Industry Canada

B-001-02-04 (3)
The Amateur Radio Operator Certificate:
must be put on file
must be kept in a safe place
must be retained at the station
must be kept on the person to whom it is issued

B-001-02-05 (1)
The holder of a radio authorization shall, at the request of a duly appointed radio inspector, show the radio authorization, or a copy thereof, to the inspector, within ____ hours after the request:
48
12
24
72

B-001-02-06 (1)
The fee for an Amateur Radio Operator Certificate is:
free
$32
$10
$24

B-001-02-07 (4)
The Amateur Radio Operator Certificate should be:
retained in a safety deposit box
retained on the radio amateur's person
retained in the radio amateur's vehicle
retained at the address notified to Industry Canada

B-001-03-01 (3)
Out of amateur band transmissions:
must be identified with your call sign
are permitted
are prohibited - penalties could be assessed to the control operator
are permitted for short tests only

B-001-03-02 (4)
If an amateur pretends there is an emergency and transmits the word "MAYDAY," what is this called?
A traditional greeting in May
An emergency test transmission
Nothing special: "MAYDAY" has no meaning in an emergency
False or deceptive signals

B-001-03-03 (1)
A person found guilty of transmitting a false or fraudulent distress signal, or interfering with, or obstructing any radio communication, without lawful cause, may be liable, on summary conviction, to a penalty of:
a fine, not exceeding $5 000, or a prison term of one year, or both
a fine of $10 000
a prison term of two years
a fine of $1 000

B-001-03-04 (3)
Which of the following statements is NOT correct?
No person shall decode an encrypted subscription programming signal without permission of the lawful distributor
No person shall, without lawful excuse, interfere with or obstruct any radiocommunication
A person may decode an encrypted subscription programming signal, and retransmit it to the public
No person shall send, transmit, or cause to be transmitted, any false or fraudulent distress signal

B-001-03-05 (3)
Which of the following is NOT correct?
The Minister may suspend a radio authorization:
where the holder has contravened the Act, the Regulations, or the terms and conditions of the authorization
where the radio authorization was obtained through misrepresentation
with no notice, or opportunity to make representation thereto
where the holder has failed to comply with a request to pay fees or interest due

B-001-03-06 (2)
Which of the following statements is NOT correct?
Where entry is refused, and is necessary to perform his duties under the Act, a radio inspector may obtain a warrant
A radio inspector may enter a dwelling without the consent of the occupant and without a warrant
In executing a warrant, a radio inspector shall not use force, unless accompanied by a peace officer, and force is authorized
The person in charge of a place entered by a radio inspector shall give the inspector information that the inspector requests

B-001-03-07 (4)
The Minister may suspend or revoke a radio authorization WITHOUT NOTICE:
where the radio authorization was obtained through misrepresentation
where the holder has contravened the Act or Regulations
where the holder has contravened the terms and conditions of the authorization
where the holder has failed to comply with a request to pay fees or interest due

B-001-04-01 (3)
What age must you be to hold an Amateur Radio Operator Certificate with Basic Qualification?
70 years or younger
18 years or older
There are no age limits
14 years or older

B-001-04-02 (1)
Which examinations must be passed before an Amateur Radio Operator Certificate is issued?
Basic
12 w.p.m.
5 w.p.m.
Advanced

B-001-04-03 (2)
The holder of an Amateur Digital Radio Operator's Certificate:
has equivalency for the Basic qualification
has equivalency for the Basic and Advanced qualifications
has equivalency for the Basic and 12 w.p.m qualifications
has equivalency for the Basic, Advanced and 12 w.p.m. qualifications

B-001-04-04 (4)
After an Amateur Radio Operator Certificate with Basic qualifications is issued, the holder may be examined for additional qualifications in the following order:
12 w.p.m. after passing the Advanced
5 w.p.m. after passing the 12 w.p.m.
Advanced after the 5 w.p.m.
any order

B-001-04-05 (4)
Two Morse code qualifications are available for the Amateur Radio Operator Certificate. They are:
5 and 10 w.p.m.
7 and 12 w.p.m.
7 and 15 w.p.m.
5 and 12 w.p.m.

B-001-04-06 (4)
The holder of an Amateur Radio Operator Certificate with the Basic Qualification is authorized to operate following stations:
a station authorized in the aeronautical service
a station authorized in the maritime service
any authorized station except stations authorized in the amateur, aeronautical or maritime services
a station authorized in the amateur service

B-001-05-01 (1)
Radio apparatus may be installed, placed in operation, repaired or maintained by the holder of an Amateur Radio Operator Certificate with Advanced Qualification on behalf of another person:
if the other person is the holder of a radio authorization to operate in the amateur radio service
pending the granting of a radio authorization, if the apparatus covers the amateur and commercial frequency bands
pending the granting of a radio authorization, if the apparatus covers the amateur frequency bands only
if the transmitter of a station, for which a radio authorization is to be applied for, is type approved and crystal controlled

B-001-05-02 (1)
The holder of an Amateur Radio Operator Certificate may build transmitting equipment for use in the amateur radio service provided that person has the:
Advanced qualification
Morse code 12 w.p.m. qualification
Morse code 5 w.p.m. qualification
Basic qualification

B-001-05-03 (4)
Where a friend is not the holder of any type of radio operator certificate, you, as a holder of an Amateur Radio Operator Certificate with Basic Qualification, may, on behalf of your friend:
install an amateur station, but not operate or permit the operation of the apparatus
install and operate the radio apparatus, using your own call sign
modify and repair the radio apparatus but not install it
not install, place in operation, modify, repair, maintain, or permit the operation of the radio apparatus

B-001-05-04 (1)
A radio amateur with Basic and 12 w.p.m. Morse qualifications may install an amateur station for another person:
only if the other person is the holder of a valid Amateur Radio Operator Certificate
only if the final power input does not exceed 100 watts
only if the station is for use on one of the VHF bands
only if the DC power input to the final stage does not exceed 200 watts

B-001-06-01 (1)
An amateur station with a maximum input to the final stage of 2 watts:
must be licensed at all locations
must be licensed in built-up areas only
must be licensed in isolated areas only
is exempt from licensing

B-001-06-02 (3)
An amateur station may be used to communicate with:
any stations which are identified for special contests
armed forces stations during special contests and training exercises
similarly licensed stations
any station transmitting in the amateur bands

B-001-06-03 (4)
Which of the following statements is NOT correct?
A radio amateur may not transmit superfluous signals
A radio amateur may not transmit profane or obscene language or messages
A radio amateur may not operate, or permit to be operated, a radio apparatus which he knows is not performing to the Radiocommunication Regulations
A radio amateur may use his linear amplifier to amplify the output of a licence-exempt transmitter

B-001-06-04 (3)
Which of the following statements is NOT correct?
No person shall possess or operate any device, for the purpose of amplifying the output power of a licence-exempt radio apparatus
A person may operate or permit the operation of radio apparatus only where the apparatus is maintained to the Radiocommunication Regulations tolerances
A person may operate radio apparatus on the amateur radio bands only to transmit superfluous signals
A person may operate an amateur radio station when the person complies with the Standards for the Operation of Radio Stations in the Amateur Radio Service

B-001-06-05 (1)
Which of the following statements is NOT correct? A person may operate radio apparatus, licensed in the amateur service:
on aeronautical, marine or land mobile frequencies
only where the person complies with the Standards for the Operation of Radio Stations in the Amateur Radio Service
only where the apparatus is maintained within the performance standards set by Industry Canada regulations and policies
but not for the amplification of the output power of licence-exempt radio apparatus

B-001-07-01 (4)
Which of the following CANNOT be discussed on an amateur club net?
Recreation planning
Code practice planning
Emergency planning
Business planning

B-001-07-02 (1)
When is a radio amateur allowed to broadcast information to the general public?
Never
Only when the operator is being paid
Only when broadcasts last less than 1 hour
Only when broadcasts last longer than 15 minutes

B-001-07-03 (1)
When may false or deceptive amateur signals or communications be transmitted?
Never
When operating a beacon transmitter in a "fox hunt" exercise
When playing a harmless "practical joke"

When you need to hide the meaning of a message for secrecy

B-001-07-04 (1)
Which of the following one-way communications may not be transmitted in the amateur service?
Broadcasts intended for the general public
Telecommands to model craft
Brief transmissions to make adjustments to the station
Morse code practice

B-001-07-05 (1)
When may you send indecent or profane words from your amateur station?
Never
Only when they do not cause interference to other communications
Only when they are not retransmitted through a repeater
Any time, but there is an unwritten rule among amateurs that they should not be used on the air

B-001-07-06 (3)
When may an amateur station in two-way communication transmit a message in a secret code in order to obscure the meaning of the communication?
During a declared communications emergency
During contests
Never
When transmitting above 450 MHz

B-001-07-07 (4)
What are the restrictions on the use of abbreviations or procedural signals in the amateur service?
There are no restrictions
They are not permitted because they obscure the meaning of a message to government monitoring stations
Only "10 codes" are permitted
They may be used if they do not obscure the meaning of a message

B-001-07-08 (4)
What should you do to keep you station from retransmitting music or signals from a non- amateur station?
Turn up the volume of your transmitter
Speak closer to the microphone to increase your signal strength
Adjust your transceiver noise blanker
Turn down the volume of background audio

B-001-07-09 (3)
The transmission of a secret code by the operator of an amateur station:
is permitted for contests
must be approved by Industr Canada
is not permitted
is permitted for third-part traffic

B-001-07-10 (2)
A radio amateur may be engaged in communication which include the transmission of:
programming that originates from a broadcasting undertakin
Q signals
radiocommunication in support of industrial, business, or professional activities
commercially recorded material

B-001-07-11 (4)
An amateur station may transmit:
profane or obscene words or language
music
secret codes or ciphers
signals which are not superfluous

B-001-08-01 (1)
Where may the holder of an Amateur Radio Operator Certificate operate an amateur radio station in Canada?
anywhere in Canada
anywhere in Canada during times of emergency
only at the address shown o Industry Canada records
anywhere in your call sign prefix area

B-001-08-02 (1)
Which type of station may transmit one-way communications?
Beacon station
Repeater station
HF station
VHF station

B-001-08-03 (1)
Amateur radio operators may install or operate radio apparatus:
at any location in Canada
only at the address which is on record at Industry Canada
at the address which is on record at Industry Canada and at one other location
at the address which is on record at Industry Canada and in two mobiles

B-001-08-04 (2)
In order to install any radio apparatus, to be used specifically for receiving and automatically retransmitting radiotelephone communications within the same frequency band, a radio amateur must hold an Amateur Radio Operator Certificate, with a minimum of these qualifications:
Basic and 12 w.p.m. Morse qualifications
Basic and Advanced qualifications
Basic Qualification
Basic and 5 w.p.m. Morse qualifications

B-001-08-05 (1)
In order to install any radio apparatus, to be used specifically for an amateur radio club station, the radio amateur must hold an Amateur Radio Operator Certificate, with a minimum of the following qualifications:
Basic and Advanced
Basic, Advanced and 5 w.p.m.
Basic
Basic, Advanced, and 12 w.p.m.

B-001-08-06 (4)
In order to install or operate a transmitter or RF amplifier that is not commercially manufactured for use in the amateur service, a radio amateur must hold an Amateur Operator's Certificate, with a minimum of which qualifications?
Basic, Advanced and 12 w.p.m.
Basic, and 12 w.p.m.
Basic, Advanced and 5 w.p.m.
Basic and Advanced

B-001-09-01 (2)
Who is responsible for the proper operation of an amateur station?
Only the station owner who is the holder of an Amateur Radio Operator Certificate
Both the control operator and the station licensee
The person who owns the station equipment
Only the control operator

B-001-09-02 (2)
If you transmit from another amateur's station, who is responsible for its proper operation?
You, the control operator
Both of you
The station owner, unless the station records show that you were the control operator at the time
The station owner

B-001-09-03 (4)
What is your responsibility as a station owner?
You must allow another amateur to operate your station upon request
You must be present whenever the station is operated
You must notify Industry Canada if another amateur acts as the control operator
You are responsible for the proper operation of the station in accordance with the regulations

B-001-09-04 (2)
Who may be the control operator of an amateur station?
Any person over 21 years of age with a Basic Qualification
Any qualified amateur chosen by the station owner
Any person over 21 years of age with Basic and 12 w.p.m. qualifications
Any person over 21 years of age

B-001-09-05 (3)
When must an amateur station have a control operator?
A control operator is not needed
Whenever the station receiver is operated
Whenever the station is transmitting
Only when training another amateur

B-001-09-06 (4)
When a station is transmitting, where must its control operator be?
Anywhere in the same building as the transmitter
At the station's entrance, to control entry to the room
Anywhere within 50 km of the station location
At the station's control point

B-001-09-07 (4)
Why can't family members without qualifications transmit using your amateur station if they are alone with your equipment?
They must not use your equipment without your permission
They must first know how to use the right abbreviations and Q signals
They must first know the right frequencies and emissions for transmitting
They must hold suitable amateur radio qualifications before they are allowed to be control operators

B-001-09-08 (3)
The owner of an amateur station may:
permit anyone to take part in communications only if prior written permission is received from Industry Canada
permit anyone to use the station without restrictions
permit any person to operate the station under the supervision and in the presence of the holder of the amateur operator certificate
permit anyone to use the station and take part in communications

B-001-09-09 (3)
Which of the following statements is CORRECT?
A person, holding only Basic Qualification, may operate another station on 14.2 MHz
radio amateur may permit any person to operate the station without supervision
Any person may operate an amateur station under supervision, and in the presence of, a person holding appropriate qualifications
Any person may operate a station in the amateur radio service

B-001-10-01 (1)
What is a transmission called that disturbs other communications?
Harmful interference
Interrupted CW
Transponder signals
Unidentified transmissions

B-001-10-02 (1)
When may you deliberately interfere with another station's communications?
Never
Only if the station is operating illegally
Only if the station begins transmitting on a frequency you are using
You may expect, and cause, deliberate interference because it can't be helped during crowded band conditions

B-001-10-03 (1)
If the regulations say that the amateur service is a secondary user of a frequency band, and another service is a primary user, what does this mean?
Amateurs are allowed to use the frequency band only if they do not cause interference to primary users
Nothing special: all users of a frequency band have equal rights to operate
Amateurs are only allowed to use the frequency band during emergencies
Amateurs must increase transmitter power to overcome any interference caused by primary users

B-001-10-04 (1)
What rule applies if two amateur stations want to use the same frequency?
Both station operators have an equal right to operate on the frequency
The station operator with a lesser class of licence must yield the frequency to a higher-class licensee
The station operator with a lower power output must yield the frequency to the station with a higher power output
Station operators in ITU Regions 1 and 3 must yield the frequency to stations in ITU Region 2

B-001-10-05 (4)
What name is given to a form of interference that seriously degrades, obstructs or repeatedly interrupts a radiocommunication service?
Intentional interference
Adjacent interference
Disruptive interference
Harmful interference

B-001-10-06 (3)
Where interference to the reception of radiocommunications is caused by the operation of an amateur station:
the amateur station operator is not obligated to take any action
the amateur station operator may continue to operate without restrictions
the Minister may require that the necessary steps for the prevention of the interference be taken by the radio amateur
the amateur station operator may continue to operate and the necessary steps can be taken when the amateur operator can afford it

B-001-10-07 (3)
Radio amateur operation must not cause interference to other radio services operating in which of the following bands?
7.0 to 7.1 MHz
144.0 to 148.0 MHz
430.0 to 450.0 MHz
14.0 to 14.2 MHz

B-001-10-08 (4)
Radio amateur operations are not protected from interference caused by another service operating in which of the following frequency bands?
144 to 148 MHz
220 to 225 MHz
50 to 54 MHz
902 to 928 MHz

B-001-10-09 (3)
Which of the following is NOT correct? The operator of an amateur station:
shall not cause harmful interference to a station in another service which has primary use of that band
may conduct technical experiments using the station apparatus
may make trials or tests, even though there is a possibility of interfering with other stations
may make trials or tests, except under circumstances that preclude the possibility of interference with other stations

B-001-11-01 (3)
Amateur radio stations may communicate:
with anyone who uses international Morse code
with non amateur stations
with any station involved in a real or simulated emergency
only with other amateur stations

B-001-11-02 (2)
In the amateur radio service, business communications:
Are permitted on some bands
are not permitted under any circumstance
are only permitted if they are for the safety of life or immediate protection of property
are not prohibited by regulation

B-001-11-03 (3)
If you hear an unanswered distress signal on a amateur band where you do not have privileges to communicate:
you may offer assistance using international Morse code only
you may offer assistance after contacting Industry Canada for permission to do so
you should offer assistance
you may not offer assistance

B-001-11-04 (4)
In the amateur radio service, it is permissible to broadcast:
music
commercially recorded material
programming that originates from a broadcast undertaking
radio communications required for the immediate safety of life of individuals or the immediate protection of property

B-001-11-05 (3)
An amateur radio station in distress may:
only use radiocommunication bands for which the operator is qualified to use
use any means of radiocommunication, but only on internationally recognized emergency channels
any means of radiocommunication
only Morse code communications on internationally recognized emergency channels

B-001-11-06 (2)
During a disaster, when may an amateur station make transmissions necessary to meet essential communication needs and assist relief operations?
Never: only official emergency stations may transmit in a disaster
When normal communication systems are overloaded, damaged or disrupted
When normal communication systems are working but are not convenient
Only when the local emergency net is activated

B-001-11-07 (3)
During an emergency, what power output limitations must be observed by a station in distress?
1000 watts PEP during daylight hours, reduced to 200 watts PEP during the night
1500 watts PEP
There are no limitations during an emergency
200 watts PEP

B-001-11-08 (4)
During a disaster:
use only frequencies in the 80 metre band
use only frequencies in the 40 metre band
use any United Nations approved frequency
most communications are handled by nets using predetermined frequencies in amateur bands. Operators not directly involved with disaster communications are requested to avoid making unnecessary transmissions on or near frequencies being used for disaster communications

B-001-11-09 (4)
Messages from recognized public service agencies may be handled by amateur radio stations:
using Morse code only
when Industry Canada has issued a special authorization
only on the 7 and 14 MHz band
during peace time and civil emergencies and exercises

B-001-11-10 (4)
It is permissible to interfere with the working of another station if:
the other station is not operating according to the Radiocommunication Regulations
you both wish to contact the same station
the other station is interfering with your transmission
your station is directly involved with a distress situation

B-001-12-01 (3)
What kind of payment is allowed for third-party messages sent by an amateur station?
Donation of amateur equipment
Donation of equipment repairs
No payment of any kind is allowed
Any amount agreed upon in advance

B-001-12-02 (2)
Radiocommunications transmitted by stations other than a broadcasting station may be divulged or used:
if transmitted by any station using the international Morse code
if it is transmitted by an amateur station
if transmitted in English or French
during peacetime civil emergencies

B-001-12-03 (4)
The operator of an amateur station:
shall charge no less than $10 for each message that the person transmits or receives
shall charge no more than $10 for each message that the person transmits or receives
may accept a gift or gratuity in lieu of remuneration for any message that the person transmits or receives
shall not demand or accept remuneration in any form, in respect of a radiocommunication that the person transmits or receives

B-001-12-04 (1)
Which of the following is NOT an exception from the penalties under the Act, for divulging, intercepting or using information obtained through radiocommunication, other than broadcasting?
Where it is to provide information for a journalist
Where it is for the purpose of preserving or protecting property, or for the prevention of harm to a person
Where it is for the purpose of giving evidence in a criminal or civil proceeding in which persons are required to give evidence
Where it is on behalf of Canada, for the purpose of international or national defence or security

B-001-13-01 (2)
Which of the following call signs is a valid Canadian amateur radio callsign?
SM2CAN
VA3XYZ
BY7HY
KA9OLS

B-001-13-02 (1)
How often must an amateur station be identified?
At least every thirty minutes, and at the beginning and at the end of a contact
At the beginning of a contact and at least every thirty minutes after that
At least once during each transmission
At the beginning and end of each transmission

B-001-13-03 (4)
What do you transmit to identify your amateur station?
Your "handle"
Your first name and your location
Your full name
Your call sign

B-001-13-04 (2)
What identification, if any, is required when two amateur stations begin communications?
No identification is required
Each station must transmit its own call sign
Both stations must transmit both call signs
One of the stations must give both stations' call signs

B-001-13-05 (1)
What identification, if any, is required when two amateur stations end communications?
Each station must transmit its own call sign
No identification is required
One of the stations must transmit both stations' call signs
Both stations must transmit both call signs

B-001-13-06 (3)
What is the longest period of time an amateur station can operate, without transmitting its call sign?
20 minutes
15 minutes
30 minutes
10 minutes

B-001-13-07 (4)
When may an amateur transmit unidentified communications?
Only for brief tests not meant as messages
Only if it does not interfere with others
Only for two-way or third- party communications
Never, except to control a model craft

B-001-13-08 (1)
What language may you use when identifying your station?
English or French
Any language being used for a contact
Any language being used for a contact, providing Canada has a third-party communications agreement with that country
Any language of a country which is a member of the International Telecommunication Union

B-001-13-09 (4)
The call sign of an amateur station must be transmitted:
at intervals not greater than three minutes when using voice communications
at intervals not greater than ten minutes when using Morse code
when requested to do so by the station being called
at the beginning and at the end of each exchange of communications and at intervals not greater than 30 minutes

B-001-13-10 (3)
The call sign of an amateur station must be sent:
every minute
every 15 minutes
at the beginning and end of each exchange of communications, and at least every 30 minutes, while in communications
once after initial contact

B-001-13-11 (1)
The call sign of a Canadian amateur radio station would normally start with the letters:
VA, VE, VO or VY
GA, GE, MO or VQ
A, K, N or W
EA, EI, RO or UY

B-001-14-01 (2)
If a non-amateur friend is using your station to talk to someone in Canada, and a foreign station breaks in to talk to your friend, what should you do?
Since you can talk to foreign amateurs, your friend may keep talking as long as you are the control operator
Have your friend wait until you find out if Canada has a third-party agreement with the foreign station's government
Report the incident to the foreign amateur's government
Stop all discussions and quickly sign off

B-001-14-02 (3)
If you let an unqualified third party use your amateur station, what must you do at your station's control point?
You must key the transmitter and make the station identification
You must monitor and supervise the communication only if contacts are made on frequencies below 30 MHz
You must continuously monitor and supervise the third party's participation
You must monitor and supervise the communication only if contacts are made in countries which have no third party communications

B-001-14-03 (3)
Radio amateurs may use their stations to transmit international communications on behalf of a third party only if:
the amateur station has received written authorization from Industry Canada to pass third party traffic
the communication is transmitted by secret code
such communications have been authorized by the countries concerned
prior remuneration has been received

B-001-14-04 (1)
A person operating a Canadian amateur station is forbidden to communicate with amateur stations of another country:
when that country has notified the International Telecommunication Union that it objects to such communications
without written permission from Industry Canada
until he has properly identified his station
unless he is passing third- party traffic

B-001-14-05 (2)
International communications on behalf of third parties may be transmitted by an amateur station only if:
English or French is used to identify the station at the end of each transmission
the countries concerned have authorized such communications
the countries for which the traffic is intended have registered their consent to such communications with the ITU
radiotelegraphy is used

B-001-14-06 (4)
Amateur third party communications is:
the transmission of commercial or secret messages
a simultaneous communication between three operators
none of these answers
the transmission of non- commercial or personal messages to or on behalf of a third party

B-001-14-07 (3)
Third-party traffic is:
any message passed by an amateur station
coded communications of any type
a message sent to a non- amateur via an amateur station
any communication between two amateur operators

B-001-14-08 (3)
One of the following is not considered to be communications on behalf of a third party, even though the message is originated by, or addressed to, a non-amateur:
messages that are handled within a local network
messages addressed to points within Canada
messages originated from Canadian Forces Affiliated Radio Service (CFARS)
all messages received from Canadian stations

B-001-14-09 (1)
One of the following is not considered to be communications on behalf of a third party, even though the message may be originated by, or addressed to, a non-amateur:
messages that originate from the United States Military Affiliated Radio System (MARS)
all messages originated by Canadian amateur stations
messages addressed to points within Canada from the United States
messages that are handled within local networks during a simulated emergency exercise

B-001-14-10 (3)
Which of the following is NOT correct? While in Canada, the operator of a station licensed by the Government of the United States, shall identify the station using three of these identifiers:
by adding to the call sign the Canadian call sign prefix for the geographic location of the station
by radiotelephone, adding to the call sign the word "mobile" or "portable" or by radiotelegraph adding the oblique character "/"
US radio amateurs must obtain a Canadian amateur station licence before operating in Canada
by transmitting the call sign assigned by the FCC

B-001-14-11 (1)
Which of the following statements is NOT correct? A Canadian radio amateur may:
pass third-party traffic with all duly licensed amateur stations in any country which is a member of the ITU
pass messages originating from or destined to the United States Military Affiliated Radio System (MARS)
pass messages originating from or destined to the Canadian Forces Affiliated Radio Service (CFARS)
communicate with a similar station of a country which has not notified ITU that it objects to such communications

B-001-15-01 (1)
If you let another amateur with additional qualifications than yours control your station, what operating privileges are allowed?
Only the privileges allowed by your qualifications
Any privileges allowed by the additional qualifications
All the emission privileges of the additional qualifications, but only the frequency privileges of your qualifications
All the frequency privileges of the additional qualifications, but only the emission privileges of your qualifications

B-001-15-02 (4)
If you are the control operator at the station of another amateur who has additional qualifications to yours, what operating privileges are you allowed?
Any privileges allowed by the additional qualifications
All the emission privileges of the additional qualifications, but only the frequency privileges of your qualifications
All the frequency privileges of the additional qualifications, but only the emission privileges of your qualifications
Only the privileges allowed by your qualifications

B-001-15-03 (4)
In addition to passing the Basic written examination, what must you do before you are allowed to use amateur frequencies below 30 MHz?
You must notify Industry Canada that you intend to operate on the HF bands
You must pass a Morse code test
You must attend a class to learn about HF communications
You must pass a Morse code or Advanced test or attain a mark of 80% on the Basic exam

B-001-15-04 (2)
The licensee of an amateur station may operate radio controlled models:
if the control transmitter does not exceed 15 kHz of occupied bandwidth
on all frequencies above 30 MHz
if the frequency used is below 30 MHz
if only pulse modulation is used

B-001-15-05 (4)
In Canada, the 75/80 metre amateur band corresponds in frequency to:
3.0 to 3.5 MHz
4.0 to 4.5 MHz
4.5 to 5.0 MHz
3.5 to 4.0 MHz

B-001-15-06 (1)
In Canada, the 160 metre amateur band corresponds in frequency to:
1.8 to 2.0 MHz
1.5 to 2.0 MHz
2.0 to 2.25 MHz
2.25 to 2.5 MHz

B-001-15-07 (4)
In Canada, the 40 metre amateur band corresponds in frequency to:
6.5 to 6.8 MHz
6.0 to 6.3 MHz
7.7 to 8.0 MHz
7.0 to 7.3 MHz

B-001-15-08 (1)
In Canada, the 20 meter amateur band corresponds in frequency to:
14.000 to 14.350 MHz
13.500 to 14.000 MHz
15.000 to 15.750 MHz
16.350 to 16.830 MHz

B-001-15-09 (4)
In Canada, the 15 metre amateur band corresponds in frequency to:
18.068 to 18.168 MHz
14.000 to 14.350 MHz
28.000 to 29.700 MHz
21.000 to 21.450 MHz

B-001-15-10 (1)
In Canada, the 10 metre amateur band corresponds in frequency to:
28.000 to 29.700 MHz
24.890 to 24.990 MHz
21.000 to 21.450 MHz
50.000 to 54.000 MHz

B-001-15-11 (3)
In Canada, radio amateurs may use which of the following for radio control of models:
50 to 54 MHz only
all amateur frequency bands
all amateur frequency bands above 30 MHz
50 to 54, 144 to 148, and 220 to 225 MHz only

B-001-16-01 (4)
What is the maximum authorized bandwidth within the frequency range of 50 to 148 MHz?
20 kHz
The total bandwidth shall not exceed that of a single-sideband phone emission
The total bandwidth shall not exceed 10 times that of a CW emission
30 kHz

B-001-16-02 (2)
The maximum bandwidth of an amateur station's transmission allowed in the band 28 to 29.7 MHz is:
6 kHz
20 kHz
30 kHz
15 kHz

B-001-16-03 (1)
Except for one band, the maximum bandwidth of an amateur station's transmission allowed below 28 MHz is:
6 kHz
15 kHz
20 kHz
30 kHz

B-001-16-04 (3)
The maximum bandwidth of an amateur station's transmission allowed in the band 144 to 148 MHz is:
6 kHz
20 kHz
30 kHz
15 kHz

B-001-16-05 (2)
The maximum bandwidth of an amateur station's transmission allowed in the band 50 to 54 MHz is:
20 kHz
30 kHz
6 kHz
15 kHz

B-001-16-06 (2)
Only one band of amateur frequencies has a maximum allowed bandwidth of less than 6 kHz. That band is:
18.068 to 18.168 MHz
10.1 to 10.15 MHz
24.89 to 24.99 MHz
1.8 to 2.0 MHz

B-001-16-07 (2)
Single sideband is not permitted in the band:
18.068 to 18.168 MHz
10.1 to 10.15 MHz
24.89 to 24.99 MHz
7.0 to 7.3 MHz

B-001-16-08 (4)
The bandwidth of an amateur station shall be determined by measuring the frequency band occupied by that signal at a level of ____ dB below the maximum amplitude of that signal:
3
6
36
26

B-001-16-09 (3)
Which of the following answers is NOT correct? Based on the bandwidth required, the following modes may be transmitted on these frequencies:
AMTOR on 14.08 MHz
packet on 10.145 MHz
fast-scan television (ATV) on 145 MHz
fast-scan television (ATV) on 440 MHz

B-001-16-10 (1)
Which of the following answers is NOT correct? Based on the bandwidth required, the following modes may be transmitted on these frequencies:
fast-scan television (ATV) on 14.23 MHz
slow-scan television (SSTV) on 14.23 MHz
frequency modulation (FM) on 29.6 MHz
single-sideband (SSB) on 3.76 MHz

B-001-16-11 (1)
Which of the following answers is NOT correct? Based on the bandwidth required, the following modes may be transmitted on these frequencies:
single-sideband (SSB) on 10.12 MHz
frequency modulation (FM) on 29.6 MHz
Morse radiotelegraphy (CW) on 10.11 MHz
packet on 10.148 MHz

B-001-17-01 (1)
What amount of transmitter power must radio amateurs use at all times?
The minimum legal power necessary to communicate
25 watts PEP output
250 watts PEP output
2000 watts PEP output

B-001-17-02 (3)
What is the most FM transmitter power a holder of only Basic Qualification may use on 147 MHz?
1000 watts DC input
200 watts PEP output
250 W DC input
25 watts PEP output

B-001-17-03 (2)
At what point in your station is transceiver power measured?
At the final amplifier input terminals inside the transmitter or amplifier
At the antenna terminals of the transmitter or amplifier
On the antenna itself, after the feed line
At the power supply terminals inside the transmitter or amplifier

B-001-17-04 (4)
What is the maximum transmitting output power an amateur station may use on 3750 kHz, if the operator has Basic and 5 w.p.m. qualifications?
1000 watts PEP output for SSB operation
1500 watts PEP output for SSB operation
2000 watts PEP output for SSB operation
560 watts PEP output for SSB operation

B-001-17-05 (2)
What is the maximum transmitting power an amateur station may use for SSB operation on 7055 kHz, if the operator has Basic and 12 w.p.m. qualifications?
1000 watts PEP output
560 watts PEP output
2000 watts PEP output
200 watts PEP output

B-001-17-06 (3)
The DC power input to the anode or collector circuit of the final RF stage of a transmitter, used by a holder of an Amateur Radio Operator Certificate with Advanced Qualification, shall not exceed:
250 watts
500 watts
1000 watts
750 watts

B-001-17-07 (2)
The maximum DC input to the final stage of an amateur transmitter, when the operator is the holder of both the Basic and Advanced qualifications, is:
250 watts
1000 watts
1500 watts
500 watts

B-001-17-08 (3)
The operator of an amateur station, who is the holder of a Basic Qualification, shall ensure that the station power, when expressed as RF output power measured across an impedance matched load, does not exceed:
2500 watts peak power
1000 watts carrier power for transmitters producing other emissions
560 watts peak-envelope power, for transmitters producing any type of single sideband emission
150 watts peak power

B-001-17-09 (3)
The holder of an Amateur Radio Operator Certificate with Basic Qualification is limited to a maximum of _____ watts when expressed as direct current input power to the anode or collector circuit of the transmitter stage supplying radio frequency energy to the antenna :
1000
750
250
100

B-001-18-01 (1)
What kind of amateur station automatically retransmits the signals of other stations?
Repeater station
Space station
Telecommand station
Beacon station

B-001-18-02 (2)
An unmodulated carrier may be transmitted only:
if the output to the final RF amplifier is kept under 5W
for brief tests on frequencies below 30 MHz
when transmitting SSB
in frequency bands below 30 MHz

B-001-18-03 (4)
Radiotelephone signals in a frequency band below ____ MHz cannot be automatically retransmitted, unless these signals are received from a station operated by a person qualified to transmit on frequencies below the above frequency:
29.7 MHz
50 MHz
144 MHz
29.5 MHz

B-001-18-04 (4)
Which of the following statements is NOT correct? Radiotelephone signals may be retransmitted:
in the 29.5-29.7 MHz band, when received in a VHF band, from a station operated by a person with only Basic Qualification.
in the 50-54 MHz frequency band, when received from a station operated by a person with only Basic Qualification
in the 144-148 MHz frequency band, when received from a station operated by a person with only Basic Qualification
in the 21 MHz band, when received in a VHF band, from a station operated by a person with only Basic Qualification

B-001-19-01 (3)
When operating on frequencies below 148 MHz:
the bandwidth for any emission must not exceed 3 kHz
the frequency stability of the transmitter must be at least two parts per million over a period of one hour
the frequency stability must be comparable to crystal control
an overmodulation indicator must be used

B-001-19-02 (1)
A reliable means to prevent or indicate overmodulation must be employed at an amateur station if:
radiotelephony is used
DC input power to the anode or collector circuit of the final RF stage is in excess of 250 watts
radiotelegraphy is used
persons other than the licensee use the station

B-001-19-03 (4)
An amateur station using radiotelephony must install a device for indicating or preventing:
resonance
antenna power
plate voltage
overmodulation

B-001-19-04 (2)
The maximum percentage of modulation permitted in the use of radiotelephony by an amateur station is:
75 percent
100 percent
50 percent
90 percent

B-001-19-05 (3)
All amateur stations, regardless of the mode of transmission used, must be equipped with:
a DC power meter
an overmodulation indicating device
a reliable means of determining the operating radio frequency
a dummy antenna

B-001-19-06 (4)
The maximum percentage of modulation permitted in the use of radiotelephony by an amateur station is:
90 percent
75 percent
50 percent
100 percent

B-001-20-01 (3)
What type of messages may be transmitted to an amateur station in a foreign country?
Messages of any type, if the foreign country allows third-party communications with Canada
Messages that are not religious, political, or patriotic in nature
Messages of a technical nature or personal remarks of relative unimportance
Messages of any type

B-001-20-02 (4)
The operator of an amateur station shall ensure that:
communications are exchanged only with commercial stations
all communications are conducted in secret code
charges are properly applied to all third-party communications
communications are limited to messages of a technical or personal nature

B-001-20-03 (3)
Which of the following is NOT a provision of the ITU Radio Regulations which apply to Canadian radio amateurs?
It is forbidden to transmit international messages on behalf of third parties, unless those countries make special arrangements
Radiocommunications between countries shall be forbidden, if the administration of one of the countries objects
Transmissions between countries shall not include any messages of a technical nature, or remarks of a personal character
Administrations shall take such measures as they judge necessary to verify the operational and technical qualifications of amateurs

B-001-20-04 (4)
The ITU Radio Regulations limit those radio amateurs, who have not demonstrated proficiency in Morse code, to frequencies above:
1.8 MHz
3.5 MHz
28 MHz
none of the above

B-001-20-05 (2)
In addition to complying with the Act and Radiocommunication Regulations, Canadian radio amateurs must also comply with the regulations of the:
American Radio Relay League
International Telecommunication Union
Radio Amateurs of Canada Inc.
International Amateur Radio Union

B-001-21-01 (3)
In which International Telecommunication Union Region is Canada?
Region 4
Region 3
Region 2
Region 1

B-001-21-02 (1)
A Canadian radio amateur, operating his station in the state of Florida, is subject to which frequency band limits?
Those applicable to US radio amateurs
ITU Region 2
ITU Region 3
ITU Region 1

B-001-21-03 (3)
A Canadian radio amateur, operating his station 7 kilometres (4 miles) offshore from the coast of Florida, is subject to which frequency band limits?
Those applicable to Canadian radio amateurs
ITU Region 1
Those applicable to US radio amateurs
ITU Region 2

B-001-21-04 (3)
Australia, Japan, and Southeast Asia are in which ITU Region?
Region 4
Region 2
Region 3
Region 1

B-001-21-05 (2)
Canada is location in ITU Region:
region 1
region 2
region 3
region 4

B-001-21-06 (1)
Which of the following answers is NOT correct? Canadian radio amateurs may apply for a CEPT international radio amateur licence for operation in any of the 32 CEPT countries, and:
foreign radio amateurs, holding CEPT Class 2 licences, receive the same privileges in Canada as Canadians with Basic and 12 WPM qualifications
Canadian radio amateurs, holding Basic and 12 w.p.m. qualifications, will be granted CEPT Class 1 recognition
Canadian radio amateurs, holding Basic Qualification only, will be granted CEPT Class 2 recognition (operation only above 30 MHz)
foreign radio amateurs, holding CEPT Class 1 licences, receive the same privileges in Canada as Canadians with Basic and 12 w.p.m. qualifications

B-001-21-07 (3)
Which of the following answers is NOT correct? Canadian radio Canadian CEPT international radio licences for operation in any of the 32 CEPT member amateurs may apply for countries, and:
foreign radio amateurs, holding CEPT Class 1 licences, will receive recognition in Canada equal to Basic and 12 w.p.m.
Canadian radio amateurs, holding Basic Qualification only, will be granted CEPT Class 2 recognition (operation above 30 MHz)
foreign radio amateurs, holding CEPT Class 1 licences, will receive recognition in Canada equal to Basic Qualification only
Canadian radio amateurs, holding Basic and 12 w.p.m. qualifications, will be granted CEPT Class 1 recognition

B-001-22-01 (2)
Which of these statements is NOT correct?
The fee for taking an examination for an Amateur Radio Operator Certificate by an accredited volunteer examiner is to be negotiated
The fee for taking an examination for an Amateur Radio Operator Certificate at an Industry Canada office is $5 per qualification
An accredited volunteer examiner must hold an Amateur Radio Operator Certificate with Basic, Advanced, and 12 w.p.m. qualifications
The fee for taking an examination for an Amateur Radio Operator Certificate at an Industry Canada office is $20 per qualification

B-001-22-02 (3)
Which of the following statements is NOT correct?
A disabled candidate, taking a Morse code sending test, may be allowed to recite the examination text in Morse code sounds
Examinations for disabled candidates may be given orally, or tailored to the candidate's ability to complete the examination
A disabled candidate must pass a normal amateur radio certificate examination before being granted any qualification
The fee for taking an amateur radio certificate examination from an accredited volunteer examiner is to be negotiated

B-001-22-03 (1)
The fee for taking examinations for amateur radio operator certificates by an accredited volunteer examiner is:
to be negotiated between examiner and candidate
always $20 per qualification
always free of charge
always $20 per visit regardless of the number of examinations

B-001-22-04 (4)
The fee for taking amateur radio certificate examinations at an Industry Canada office is:
$20 per visit, regardless of the number of qualification examinations
no charge for qualification examinations
$5 per qualification examination
$20 per qualification

B-001-23-01 (2)
Which of these statements about erection of an antenna structure is NOT correct?
There is no requirement to receive the prior approval from Industry Canada to construct an antenna or its structure
A radio amateur may erect any size antenna structure without consulting neighbours or the local land-use authority
Industry Canada expects radio amateurs to address community concerns in a responsible manner
Prior to an installation, for which community concerns could be raised, radio amateurs must consult with their land-use authority

B-001-23-02 (3)
Which of these statements is NOT correct?
If a radio amateur erects an antenna structure without consulting the land-use authority, he must accept any consequences
For the purposes of environmental filing, amateur stations are considered to be Type 2 (non-site-specific)
For the purposes of environmental filing, amateur stations are considered to be Type 1 (site-specific)
Before installing an antenna structure which could raise community concerns, radio amateurs must consult with the land-use authority

B-001-23-03 (2)
Which of the following statements is NOT correct?
Prior to installing an antenna structure, for which concerns could be raised, radio amateurs must consult their land-use authority
Radio amateurs must secure written permission of Industry Canada before installing an antenna structure
Should an antenna structure be installed without consulting the land-use authority, it must be with the acceptance of consequences
Industry Canada expects radio amateurs to responsibly address any community concerns, and to consider land-use authority requests

B-001-23-04 (2)
Before erecting an antenna structure, for which community concerns could be raised, a radio amateur must consult with:
Industry Canada only
the land-use authority, and possibly the neighbours
Industry Canada and Transport Canada
Industry Canada and the neighbours

B-001-24-01 (4)
What organization has published safety guidelines for the maximum limits of RF energy near the human body?
Canadian Standards Association
Environment Canada
Transport Canada
Health Canada

B-001-24-02 (1)
What is the purpose of the Safety Code 6?
It gives RF exposure limits for the human body
It lists all RF frequency allocations for interference protection
It sets transmitter power limits for interference protection
It sets antenna height limits for aircraft protection

B-001-24-03 (2)
According to Safety Code 6, what frequencies cause us the greatest risk from RF energy?
300 to 3000 MHz
30 to 300 MHz
Above 1500 MHz
3 to 30 MHz

B-001-24-04 (4)
Why is the limit of exposure to RF the lowest in the frequency range of 30 MHz to 300 MHz, according to Safety Code 6?
There are more transmitters operating in this range
There are fewer transmitters operating in this range
Most transmissions in this range are for a longer time
The human body absorbs RF energy the most in this range

B-001-24-05 (2)
According to Safety Code 6, what is the maximum safe power output to the antenna of a hand-held VHF or UHF radio?
10 watts
not specified - the exemption for portable equipment was withdrawn in 1999
25 watts
125 milliwatts

B-001-24-06 (4)
Which of the following statements is NOT correct?
Maximum exposure levels of RF fields to the general population, in the frequency range 10 to 300 MHz, is 28 VRMS/metre (E-field)
Permissible exposure levels of RF fields increases as frequency is increased above 300 MHz
Permissible exposure levels of RF fields increases as frequency is decreased below 10 MHz
Permissible exposure levels of RF fields decreases as frequency is decreased below 10 MHz

B-001-24-07 (2)
The permissible exposure levels of RF fields:
decreases, as frequency is decreased below 10 MHz
increases, as frequency is increased above 300 MHz
increases, as frequency is increased from 10 MHz to 300 MHz
decreases, as frequency is increased above 300 MHz

B-001-24-08 (2)
Which statement is NOT correct:
maximum exposure level of RF fields for general population, in the range 10 to 300 MHz, is 28 V RMS per metre (E-field)
portable transmitters, operating below 1 GHz with a power output up to 7 watts, are excluded from Safety Code 6 requirements
maximum exposure level of RF fields for general population, in the range 30 to 300 Mhz, is .073 A RMS per metre (H-field)
the exemption of portable transmitters, operating below 1 GHz with a power output up to 7 watts was removed from Safety Code 6 in 1999

B-001-24-09 (4)
Which statement is correct?
Safety Code 6 regulates the operation of receivers only
the operation of portable transmitting equipment is of no concern in Safety Code 6
portable transmitters, operating below 1 GHz, with an output power equal to, or less than 7 watts, are exempt from the requirements of Safety Code 6
the exemption for portable transmitters was eliminated in Safety Code 6 in 1999

B-001-24-10 (4)
The maximum exposure level of RF fields for general population, in the frequency range 10 to 300 MHz is ___ V RMS per metre (E-field):
7
37
0.073
28

B-001-25-01 (3)
In the event of interference to a neighbour's FM receiver and stereo system, if the field strength of the amateur station signal is below ____ volts per metre, it will be deemed that the affected equipment's lack of immunity is the cause:
2.8
7.9
1.83
3.16

B-001-25-02 (2)
In the event of interference to a neighbour's television receiver, if the field strength of the amateur station signal exceeds _____volts per metre, it will be deemed that the transmission is the cause of the problem:
14.2
1.83
28
3.75

B-001-25-03 (3)
Which of the following is defined as "any device, machinery or equipment, other than radio apparatus, the use or functioning of which is, or can be, adversely affected by radiocommunication emissions"?
cable television converters
audio and video recorders
radio-sensitive equipment
broadcast receivers

B-001-25-04 (1)
Which of the following types of equipment is NOT included in the list of field strength criteria for resolution of immunity complaints?
broadcast transmitters
broadcast receivers
associated equipment
radio-sensitive equipment

B-002-01-01 (2)
What is a good way to make contact on a repeater?
Say the other operator's name, then your call sign three times
Say the call sign of the station you want to contact, then your call sign
Say, "Breaker, breaker,"
Say the call sign of the station you want to contact three times

B-002-01-02 (2)
What is the main purpose of a repeater?
To link amateur stations with the telephone system
To increase the range of portable and mobile stations
To retransmit weather information during severe storm warnings
To make local information available 24 hours a day

B-002-01-03 (2)
What is an autopatch?
A device which connects a mobile station to the next repeater if it moves out of range of the first
A device that allows repeater users to make telephone calls from their stations
A device which locks other stations out of a repeater when there is an important conversation in progress
Something that automatically selects the strongest signal to be repeated

B-002-01-04 (4)
What is the purpose of a repeater time-out timer?
It lets a repeater have a rest period after heavy use
It logs repeater transmit time to predict when a repeater will fail
It tells how long someone has been using a repeater
It limits the amount of time someone can transmit on a repeater

B-002-01-05 (2)
What is a CTCSS (or PL) tone?
A tone used by repeaters to mark the end of a transmission
A sub-audible tone added to a carrier which may cause a receiver to accept a signal
A special signal used for telemetry between amateur space stations and Earth stations
A special signal used for telecommand control of model craft

B-002-01-06 (1)
How do you call another station on a repeater if you know the station's call sign?
Say the station's call sign, then identify your own station
Say "break, break 79," then say the station's call sign
Say "CQ" three times, then say the station's call sign
Wait for the station to call "CQ", then answer it

B-002-01-07 (4)
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 dial up the repeater's autopatch
To listen for anyone else wanting to use the repeater

B-002-01-08 (3)
Why should you keep transmissions short when using a repeater?
To keep long-distance charges down
To give any listening non- hams a chance to respond
A long transmission may prevent someone with an emergency from using the repeater
To see if the receiving station operator is still awake

B-002-01-09 (4)
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 an amplifier and override whoever is talking
Say your call sign during a break between transmissions

B-002-01-10 (2)
What is the proper way to ask someone their location when using a repeater?
What is your 20?
Where are you?
Locations are not normally told by radio
What is your 12?

B-002-01-11 (2)
FM repeater operation on the 2 metre band uses one frequency for transmission and one for reception. The difference in frequency between the transmit and receive frequency is normally:
800 kHz
600 kHz
1 000 kHz
400 kHz

B-002-02-01 (4)
To make your call sign better understood when using voice transmissions, what should you do?
Use any words which start with the same letters as your call sign for each letter of your call
Talk louder
Turn up your microphone gain
Use Standard International Phonetics for each letter of your call sign

B-002-02-02 (2)
What can you use as an aid for correct station identification when using phone?
Q signals
The Standard International Phonetic Alphabet
Unique words of your choice
A speech compressor

B-002-02-03 (1)
What is the Standard International Phonetic for the letter A?
Alpha
Able
Adam
America

B-002-02-04 (2)
What is the Standard International Phonetic for the letter B?
Brazil
Bravo
Borneo
Baker

B-002-02-05 (4)
What is the Standard International Phonetic for the letter D?
Dog
Denmark
David
Delta

B-002-02-06 (4)
What is the Standard International Phonetic for the letter E?
Easy
Edward
England
Echo

B-002-02-07 (1)
What is the Standard International Phonetic for the letter G?
Golf
George
Germany
Gibraltar

B-002-02-08 (3)
What is the Standard International Phonetic for the letter I?
Iran
Italy
India
Item

B-002-02-09 (4)
What is the Standard International Phonetic for the letter L?
Love
London
Luxembourg
Lima

B-002-02-10 (2)
What is the Standard International Phonetic for the letter P?
Portugal
Papa
Paris
Peter

B-002-02-11 (1)
What is the Standard International Phonetic for the letter R?
Romeo
Roger
Radio
Romania

B-002-03-01 (1)
What is the correct way to call "CQ" when using voice?
Say "CQ" three times, followed by "this is," followed by your call sign spoken three times
Say "CQ" once, followed by "this is," followed by your call sign spoken three times
Say "CQ" at least five times, followed by "this is," followed by your call sign spoken once
Say "CQ" at least ten times, followed by "this is," followed by your call sign spoken once

B-002-03-02 (2)
How should you answer a voice CQ call?
Say the other station's call sign at least five times phonetically, followed by "this is," then your call sign twice
Say the other station's call sign once, followed by "this is," then your call sign given phonetically
Say the other station's call sign at least three times, followed by "this is," and your call sign at least five times phonetically
Say the other station's call sign at least ten times, followed by "this is," then your call sign at least twice

B-002-03-03 (4)
What is simplex operation?
Transmitting and receiving over a wide area
Transmitting on one frequency and receiving on another
Transmitting one-way communications
Transmitting and receiving on the same frequency

B-002-03-04 (1)
When should you use simplex operation instead of a repeater?
When a contact is possible without using a repeater
When the most reliable communications are needed
When an emergency telephone call is needed
When you are traveling and need some local information

B-002-03-05 (1)
Why should local amateur communications use VHF and UHF frequencies instead of HF frequencies?
To minimize interference on HF bands capable of long-distance communication
Because greater output power is permitted on VHF and UHF
Because HF transmissions are not propagated locally
Because signals are louder on VHF and UHF frequencies

B-002-03-06 (3)
Why should simplex be used where possible, instead of using a repeater?
Your antenna's effectiveness will be better tested
Long distance toll charges will be avoided
The repeater will not be tied up unnecessarily
Signal range will be increased

B-002-03-07 (3)
If you are talking to a station using a repeater, how would you find out if you could communicate using simplex instead?
See if a third station can clearly receive both of you
See if you can clearly receive a more distant repeater
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

B-002-03-08 (1)
If you are operating simplex on a repeater frequency, why would it be good amateur practice to change to another frequency?
Changing the repeater's frequency is not practical
The repeater's output power may ruin your station's receiver
There are more repeater operators than simplex operators
Changing the repeater's frequency requires the authorization of Industry Canada

B-002-03-09 (1)
Which sideband is commonly used for 20-metre phone operation?
Upper
Lower
FM
Double

B-002-03-10 (2)
Which sideband is commonly used on 3755 kHz for phone operation?
FM
Lower
Double
Upper

B-002-03-11 (4)
What is the best method to tell if a band is "open" for communication with a particular distant location?
Ask others on your local 2 metre FM repeater
Telephone an experienced local amateur
Look at the propagation forecasts in an amateur radio magazine
Listen for signals from that area from an amateur beacon station or a foreign broadcast or television station on a nearby frequency

B-002-04-01 (2)
What should you do before you transmit on any frequency?
Check your antenna for resonance at the selected frequency
Listen to make sure others are not using the frequency
Make sure the SWR on your antenna feed line is high enough
Listen to make sure that someone will be able to hear you

B-002-04-02 (4)
If you contact another station and your signal is extremely strong and perfectly readable, what adjustment might you make to your transmitter?
Turn on your speech processor
Reduce your SWR
Continue with your contact, making no changes
Turn down your power output to the minimum necessary

B-002-04-03 (4)
What is one way to shorten transmitter tune-up time on the air to cut down on interference?
Use a random wire antenna
Tune up on 40 metres first, then switch to the desired band
Use twin lead instead of coaxial cable feed lines
Tune the transmitter into a dummy load

B-002-04-04 (4)
How can on-the-air interference be minimized during a lengthy transmitter testing or loading-up procedure?
Choose an unoccupied frequency
Use a non-resonant antenna
Use a resonant antenna that requires no loading-up procedure
Use a dummy load

B-002-04-05 (2)
Why would you use a dummy antenna?
To give comparative signal reports
To allow antenna tuning without causing interference
It is faster to tune
To reduce output power

B-002-04-06 (1)
If you are the net control station of a daily HF net, what should you do if the frequency on which you normally meet is in use just before the net begins?
Conduct the net on a frequency 3 to 5 kHz away from the regular net frequency
Reduce your output power and start the net as usual
Increase your power output so that net participants will be able to hear you over the existing activity
Cancel the net for that day

B-002-04-07 (1)
If a net is about to begin on a frequency which you and another station are using, what should you do?
As a courtesy to the net, move to a different frequency
Increase your power output to ensure that all net participants can hear you
Transmit as long as possible on the frequency so that no other stations may use it
Turn off your radio

B-002-04-08 (4)
If propagation changes during your contact and you notice other activity on the same increasing interference from frequency, what should you do?
Tell the interfering stations to change frequency, since you were there first
Report the interference to your local Amateur Auxiliary Coordinator
Increase the output power of your transmitter to overcome the interference
Move your contact to another frequency

B-002-04-09 (1)
When selecting a single- sideband phone transmitting frequency, what minimum frequency separation from a contact in progress should you allow (between suppressed carriers) to minimize interference?
Approximately 3 kHz
150 to 500 Hz
Approximately 6 kHz
Approximately 10 kHz

B-002-04-10 (2)
What is a band plan?
A plan of operating schedules within an amateur band published by Industry Canada
A guideline for using different operating modes within an amateur band
A plan devised by a club to best use a frequency band during a contest
A guideline for deviating from amateur frequency band allocations

B-002-04-11 (4)
Before transmitting, the first thing you should do is:
ask if the frequency is occupied
make an announcement on the frequency indicating that you intend to make a call
decrease your receiver's volume
listen carefully so as not to interrupt communications already in progress

B-002-05-01 (4)
What is the correct way to call "CQ" when using Morse code?
Send the letters "CQ" three times, followed by "DE", followed by your call sign sent once
Send the letters "CQ" ten times, followed by "DE", followed by your call sign sent once
Send the letters "CQ" over and over
Send the letters "CQ" three times, followed by "DE", followed by your call sign sent three times

B-002-05-02 (4)
How should you answer a Morse code "CQ" call?
Send your call sign four times
Send the other station's call sign once, followed by "DE", followed by your call sign four times
Send your call sign followed by your name, station location and a signal report
Send the other station's call sign twice, followed by "DE", followed by your call sign twice

B-002-05-03 (1)
At what speed should a Morse code CQ call be transmitted?
At any speed which you can reliably receive
At any speed below 5 WPM
At the highest speed your keyer will operate
At the highest speed at which you can control the keyer

B-002-05-04 (1)
What is the meaning of the procedural signal "CQ"?
Calling any station
Call on the quarter hour
An antenna is being tested
Only the station "CQ" should answer

B-002-05-05 (2)
What is the meaning of the procedural signal "DE"?
Received all correctly
From
Calling any station
Directional Emissions

B-002-05-06 (2)
What is the meaning of the procedural signal "K"?
End of message
Any station transmit
Called station only transmit
All received correctly

B-002-05-07 (2)
What is meant by the term "DX"?
Calling any station
Distant station
Go ahead
Best regards

B-002-05-08 (4)
What is the meaning of the term "73"?
Long distance
Love and kisses
Go ahead
Best regards

B-002-05-09 (2)
Which of the following describes full break-in telegraphy ?
Automatic keyers are used to send Morse code instead of hand keys
Incoming signals are received between transmitted Morse dots
An operator must activate a manual send/receive switch before and after every transmission
Breaking stations send the Morse code prosign "BK"

B-002-05-10 (1)
When selecting a CW transmitting frequency, what minimum frequency separation from a contact in progress should you allow to minimize interference?
150 to 500 Hz
5 to 50 Hz
1 to 3 kHz
3 to 6 kHz

B-002-05-11 (2)
Good Morse telegraphy operators:
always give stations a good readability report
listen to the frequency to make sure that it is not in use before transmitting
save time by leaving out spaces between words
tune the transmitter using the operating antenna

B-002-06-01 (2)
What are "RST" signal reports?
A short way to describe transmitter power
A short way to describe signal reception
A short way to describe sunspot activity
A short way to describe ionospheric conditions

B-002-06-02 (4)
What does "RST" mean in a signal report?
Recovery, signal strength, tempo
Recovery, signal speed, tone
Readability, signal speed, tempo
Readability, signal strength, tone

B-002-06-03 (2)
What is the meaning of: "Your signal report is 5 7"?
Your signal is readable with considerable difficulty
Your signal is perfectly readable and moderately strong
Your signal is perfectly readable with near pure tone
Your signal is perfectly readable, but weak

B-002-06-04 (3)
What is the meaning of: "Your signal report is 3 3 "?
Your signal is unreadable, very weak in strength
The station is located at latitude 33 degrees
Your signal is readable with considerable difficulty and weak in strength
The contact is serial number 33

B-002-06-05 (3)
What is the meaning of: "Your signal report is 5 9 plus 20 dB"?
The bandwidth of your signal is 20 decibels above linearity
Repeat your transmission on a frequency 20 kHz higher
A relative signal-strength meter reading is 20 decibels greater than strength 9
Your signal strength has increased by a factor of 100

B-002-06-06 (3)
What is used to measure relative signal strength in a receiver?
An SSB meter
A signal deviation meter
An S meter
An RST meter

B-002-06-07 (2)
If the power output of a transmitter is increased by four times, how might a nearby receiver's S-meter reading change?
Increase by approximately four S units
Increase by approximately one S unit
Decrease by approximately four S units
Decrease by approximately one S unit

B-002-06-08 (3)
By how many times must the power output of a transmitter be increased to raise the S-meter reading on a nearby receiver from S8 to S9?
Approximately 5 times
Approximately 3 times
Approximately 4 times
Approximately 2 times

B-002-06-09 (1)
What does "RST 579" mean in a Morse code contact?
Your signal is perfectly readable, moderately strong, and with perfect tone
Your signal is perfectly readable, weak strength, and with perfect tone
Your signal is fairly readable, fair strength, and with perfect tone
Your signal is barely readable, moderately strong, and with faint ripple

B-002-06-10 (4)
What does "RST 459" mean in a Morse code contact?
Your signal is very readable, very strong, and with perfect tone
Your signal is barely readable, very weak, and with perfect tone
Your signal is moderately readable, very weak, and with hum on the tone
Your signal is quite readable, fair strength, and with perfect tone

B-002-06-11 (1)
What is the meaning of "Your signal report is 1 1"?
Your signal is unreadable, and barely perceptible
Your signal is 11 dB over S9
Your signal is first class in readability and first class in strength
Your signal is very readable and very strong

B-002-07-01 (4)
What is the meaning of the Q signal "QRS"?
Interference from static
Send "RST" report
Radio station location is:
Send more slowly

B-002-07-02 (3)
What is one meaning of the Q signal "QTH"?
Stop sending
My name is
My location is
Time here is

B-002-07-03 (1)
What is the proper Q signal to use to see if a frequency is in use before transmitting on CW?
QRL?
QRV?
QRU?
QRZ?

B-002-07-04 (3)
What is one meaning of the Q signal "QSY"?
Use more power
Send faster
Change frequency
Send more slowly

B-002-07-05 (2)
What is the meaning of the Q signal "QSO"?
A contact is ending
A contact is in progress
A conversation is desired
A contact is confirmed

B-002-07-06 (1)
What is the proper Q signal to use to ask if someone is calling you on CW?
QRZ?
QSL?
QRL?
QRT?

B-002-07-07 (4)
The signal "QRM" signifies:
I am troubled by static
your signals are fading
is my transmission being interfered with
I am being interfered with

B-002-07-08 (4)
The signal "QRN" means:
I am busy
are you troubled by static
I am being interfered with
I am troubled by static

B-002-07-09 (2)
The "Q signal" indicating that you want the other station to send slower is:
QRM
QRS
QRL
QRN

B-002-07-10 (3)
"Who is calling me" is denoted by the "Q signal":
QRK?
QRP?
QRZ?
QRM?

B-002-07-11 (1)
The "Q signal" which signifies "I will call you again" is:
QRX
QRZ
QRS
QRT

B-002-08-01 (4)
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)
Only in case of a severe weather watch
In a life-threatening distress situation

B-002-08-02 (1)
If you are in contact with another station and you hear an emergency call for help on your frequency, what should you do?
Immediately stop your contact and take the emergency call
Tell the calling station that the frequency is in use
Direct the calling station to the nearest emergency net frequency
Call your local police station and inform them of the emergency call

B-002-08-03 (3)
What is the proper distress call to use when operating phone?
Say "SOS" several times
Say "EMERGENCY" several times
Say "MAYDAY" several times
Say "HELP" several times

B-002-08-04 (3)
What is the proper distress call to use when operating CW?
CQD
QRRR
SOS
MAYDAY

B-002-08-05 (3)
What is the proper way to interrupt a repeater conversation to signal a distress call?
Say "EMERGENCY" three times
Say "SOS," then your call sign
Say "BREAK" twice, then your call sign
Say "HELP" as many times as it takes to get someone to answer

B-002-08-06 (3)
Why is it a good idea to have a way to operate your amateur station without using commercial AC power lines?
So you will comply with rules
So you may operate in contests where AC power is not allowed
So you may provide communications in an emergency
So you may use your station while mobile

B-002-08-07 (1)
What is the most important accessory to have for a hand- held radio in an emergency?
Several sets of charged batteries
An extra antenna
A portable amplifier
A microphone headset for hands-free operation

B-002-08-08 (3)
Which type of antenna would be a good choice as part of a portable HF amateur station that could be set up in case of an emergency?
A parabolic dish
A three-element Yagi
A dipole
A three-element quad

B-002-08-09 (4)
If you are communicating with another amateur station and hear a station in distress break in, what should you do?
Continue your communication because you were on frequency first
Change to a different frequency so the station in distress may have a clear channel to call for assistance
Immediately cease all transmissions because stations in distress have emergency rights to the frequency
Acknowledge the station in distress and determine its location and what assistance may be needed

B-002-08-10 (3)
In order of priority, a distress message comes before:
no other messages
a government priority message
an urgency message
a safety message

B-002-08-11 (1)
If you hear distress traffic and are unable to render assistance you should:
maintain watch until you are certain that assistance will be forthcoming
enter the details in the log book and take no further action
take no action
tell all other stations to cease transmitting

B-002-09-01 (2)
What is a "QSL card"?
A Notice of Violation from Industry Canada
A written proof of communication between two amateurs
A postcard reminding you when your station license will expire
A letter or postcard from an amateur pen pal

B-002-09-02 (4)
What is an azimuthal map?
A map projection centered on the North Pole
A map that shows the angle at which an amateur satellite crosses the equator
A map that shows the number of degrees longitude that an amateur satellite appears to move westward at the equator
A map projection centered on a particular location, used to determine the shortest path between points on the earth's surface

B-002-09-03 (4)
What is the most useful type of map to use when orienting a directional HF antenna toward a distant station?
Mercator
Polar projection
Topographical
Azimuthal

B-002-09-04 (4)
A directional antenna pointed in the long-path direction to another station is generally oriented how many degrees from its short-path heading?
45 degrees
90 degrees
270 degrees
180 degrees

B-002-09-05 (1)
What method is used by radio amateurs to provide written proof of communication between two amateur stations?
A signed post card listing contact date, time, frequency, mode and power, called a "QSL card"
A two-page letter containing a photograph of the operator
A radiogram sent over the CW traffic net
A packet message

B-002-09-06 (3)
You hear other local stations talking to radio amateurs in New Zealand but you don't hear those stations with your beam aimed on the normal compass bearing to New Zealand. What should you try?
Point your antenna toward Newington, CT
Point your antenna to the north
Point your beam 180 degrees away from that bearing and listen for the stations arriving on the "long-path"
Point your antenna to the south

B-002-09-07 (2)
Which statement about recording all contacts and unanswered "CQ calls" in a station logbook or computer log IS NOT correct?
A log is important for recording contacts for operating awards
A logbook is required by Industry Canada
A well-kept log preserves your fondest amateur radio memories for years
A log is important for handling neighbour interference complaints

B-002-09-08 (1)
Why would it be useful to have an azimuthal world map centred on the location of your station?
Because it shows the compass bearing from your station to any place on earth, for antenna planning and pointing
Because it looks impressive
Because it shows the angle at which an amateur satellite crosses the equator
Because it shows the number of degrees longitude that an amateur satellite moves west

B-002-09-09 (1)
Station logs and confirmation (QSL) cards are always kept in UTC (Universal Time Coordinated). Where is that time based?
Greenwich, England
Geneva, Switzerland
Ottawa, Canada
Newington, CT

B-002-09-10 (1)
When referring to contacts in the station log, what do the letters UTC mean?
Universal Time Coordinated (formerly Greenwich Mean Time - GMT)
Universal Time Constant
Unlisted Telephone Call
Unlimited Time Capsule

B-002-09-11 (3)
To set your station clock accurately to UTC, you could receive the most accurate time off the air from _____ ?
A non-directional beacon station
Your local television station
CHU, WWV or WWVH
Your local radio station

B-003-01-01 (1)
A low pass filter in an HF station is most effective when connected:
as close as possible to the transceiver output
as close as possible to the antenna tuner output
as close as possible to the antenna midway between the transceiver and antenna

B-003-01-02 (4)
A low pass filter in an HF station is most effective when connected:
as close as possible to the antenna
as close as possible to the antenna tuner output
as close as possible to the linear amplifier input
as close as possible to the linear amplifier output

B-003-01-03 (2)
In designing an HF station, which component would you use to reduce the effects of harmonic radiation?
Dummy load
Low pass filter
Antenna switch
SWR bridge

B-003-01-04 (1)
Which component in an HF station is the most useful for determining the effectiveness of the antenna system?
SWR bridge
Antenna switch
Linear amplifier
Dummy load

B-003-01-05 (3)
Of the components in an HF station, which component would normally be connected closest to the antenna, antenna tuner and dummy load?
Transceiver
Low pass filter
Antenna switch
SWR bridge

B-003-01-06 (1)
Of the components in an HF station, which component would be used to match impedances between the transceiver and antenna?
Antenna tuner
Antenna switch
Dummy load
SWR bridge

B-003-01-07 (4)
In an HF station, which component is temporarily connected in the tuning process?
SWR bridge
Low pass filter
Antenna tuner
Dummy load

B-003-01-08 (1)
In an HF station, the antenna tuner is usually used for matching the transceiver with:
most antennas when operating below 14 MHz
most antennas when operating above 14 MHz
mono-band Yagi type antennas
tri-band Yagi antennas

B-003-01-09 (4)
In an HF Station, the antenna tuner is commonly used:
with most antennas when operating above 14 MHz
to tune into dummy loads
to tune low pass filters
with most antennas when operating below 14 MHz

B-003-02-01 (1)
In a frequency modulation transmitter, the input to the speech amplifier is connected to the:
microphone
modulator
power amplifier
frequency multiplier

B-003-02-02 (3)
In a frequency modulation transmitter, the microphone is connected to the:
modulator
power amplifier
speech amplifier
oscillator

B-003-02-03 (1)
In a frequency modulation transmitter, the _____is in between the speech amplifier and the oscillator.
modulator
power amplifier
microphone
frequency multiplier

B-003-02-04 (2)
In a frequency modulation transmitter, the _____ is located between the modulator and the frequency multiplier.
speech amplifier
oscillator
power amplifier
microphone

B-003-02-05 (1)
In a frequency modulation transmitter, the _____ is located between the oscillator and the power amplifier.
frequency multiplier
microphone
speech amplifier
modulator

B-003-02-06 (2)
In a frequency modulation transmitter, the _____ is located between the frequency multiplier and the antenna.
modulator
power amplifier
speech amplifier
oscillator

B-003-02-07 (3)
In a frequency modulation transmitter, the power amplifier output is connected to the:
frequency multiplier
microphone
antenna
modulator

B-003-03-01 (3)
In a frequency modulation receiver, the _____ is connected to the input of the radio frequency amplifier.
mixer
frequency discriminator
antenna
limiter

B-003-03-02 (4)
In a frequency modulation receiver, the _____ is in between the antenna and the mixer.
audio frequency amplifier
high frequency oscillator
intermediate frequency amplifier
radio frequency amplifier

B-003-03-03 (4)
In a frequency modulation receiver, the output of the high frequency oscillator is fed to the:
radio frequency amplifier
limiter
antenna
mixer

B-003-03-04 (4)
In a frequency modulation receiver, the output of the_____ is connected to the mixer.
frequency discriminator
intermediate frequency amplifier
speaker and/or headphones
high frequency oscillator

B-003-03-05 (1)
In a frequency modulation receiver, the_____ is in between the mixer and the intermediate frequency amplifier.
filter
limiter
frequency discriminator
radio frequency amplifier

B-003-03-06 (2)
In a frequency modulation receiver, the _____ is located between the filter and the limiter.
high frequency oscillator
intermediate frequency amplifier
mixer
radio frequency amplifier

B-003-03-07 (3)
In a frequency modulation receiver, the_____ is in between the intermediate frequency amplifier and the frequency discriminator.
filter
high frequency oscillator
limiter
radio frequency amplifier

B-003-03-08 (4)
In a frequency modulation receiver, the _____ is located between the limiter and the audio frequency amplifier.
intermediate frequency amplifier
speaker and/or headphones
high frequency oscillator
frequency discriminator

B-003-03-09 (4)
In a frequency modulation receiver, the _____ is located between the speaker and/or headphones and the frequency discriminator.
limiter
intermediate frequency amplifier
radio frequency amplifier
audio frequency amplifier

B-003-03-10 (3)
In a frequency modulation receiver, the _____ connects to the audio frequency amplifier output
intermediate frequency amplifier
frequency discriminator
speaker and/or headphones
limiter

B-003-04-01 (3)
In a CW transmitter, the output from the _____ is connected to the driver/buffer.
power amplifier
telegraph key
master oscillator
power supply

B-003-04-02 (2)
In a typical CW transmitter, the _____ is the primary source of direct current.
driver/buffer
power supply
power amplifier
master oscillator

B-003-04-03 (2)
In a CW transmitter, the_____ is between the master oscillator and the power amplifier.
audio amplifier
driver/buffer
power supply
telegraph key

B-003-04-04 (3)
In a CW transmitter, the_____ controls when RF energy is applied to the antenna.
master oscillator
driver/buffer
telegraph key
power amplifier

B-003-04-05 (2)
In a CW transmitter, the _____ is in between the driver/buffer stage and the antenna.
power supply
power amplifier
telegraph key
master oscillator

B-003-04-06 (1)
In a CW transmitter, the output of the _____ is transferred to the antenna.
power amplifier
driver/buffer
power supply
master oscillator

B-003-05-01 (4)
In a single sideband and CW receiver, the antenna is connected to the _____ .
product detector
high frequency oscillator
intermediate frequency amplifier
radio frequency amplifier

B-003-05-02 (4)
In a single sideband and CW receiver, the output of the _____ is connected to the mixer.
filter
intermediate frequency amplifier
audio frequency amplifier
radio frequency amplifier

B-003-05-03 (3)
In a single sideband and CW receiver, the _____ is connected to the radio frequency amplifier and the high frequency oscillator.
beat frequency oscillator
product detector
mixer
filter

B-003-05-04 (2)
In a single sideband and CW receiver, the output of the _____ is connected to the mixer.
intermediate frequency amplifier
high frequency oscillator
beat frequency oscillator
product detector

B-003-05-05 (1)
In a single sideband and CW receiver, the _____ is in between the mixer and intermediate frequency amplifier.
filter
radio frequency amplifier
beat frequency oscillator
product detector

B-003-05-06 (1)
In a single sideband and CW receiver, the _____ is in between the filter and product detector.
intermediate frequency amplifier
audio frequency amplifier
beat frequency oscillator
radio frequency amplifier

B-003-05-07 (1)
In a single sideband and CW receiver, the _____ output is connected to the audio frequency amplifier.
product detector
high frequency oscillator
beat frequency oscillator
intermediate frequency amplifier

B-003-05-08 (2)
In a single sideband and CW receiver, the output of the _____ is connected to the product detector.
mixer
beat frequency oscillator
radio frequency amplifier
audio frequency amplifier

B-003-05-09 (2)
In a single sideband and CW receiver, the _____ is connected to the output of the product detector.
intermediate frequency amplifier
audio frequency amplifier
high frequency oscillator
radio frequency amplifier

B-003-05-10 (1)
In a single sideband and CW receiver, the _____ is connected to the output of the audio frequency amplifier.
speaker and/or headphones
mixer
radio frequency amplifier
beat frequency oscillator

B-003-06-01 (1)
In a single sideband transmitter, the output of the _____ is connected to the balanced modulator.
radio frequency oscillator
variable frequency oscillator
linear amplifier
mixer

B-003-06-02 (2)
In a single sideband transmitter, the output of the _____ is connected to the filter.
microphone
balanced modulator
mixer
radio frequency oscillator

B-003-06-03 (3)
In a single sideband transmitter, the _____ is in between the balanced modulator and the mixer.
radio frequency oscillator
speech amplifier
filter
microphone

B-003-06-04 (4)
In a single sideband transmitter, the _____ is connected to the speech amplifier.
radio frequency oscillator
filter
mixer
microphone

B-003-06-05 (3)
In a single sideband transmitter, the output of the _____ is connected to the balanced modulator.
filter
variable frequency oscillator
speech amplifier
linear amplifier

B-003-06-06 (4)
In a single sideband transmitter, the output of the variable frequency oscillator is connected to the _____.
antenna
balanced modulator
linear amplifier
mixer

B-003-06-07 (1)
In a single sideband transmitter, the output of the _____ is connected to the mixer.
variable frequency oscillator
radio frequency oscillator
linear amplifier
antenna

B-003-06-08 (2)
In an single sideband transmitter, the _____ is in between the mixer and the antenna.
variable frequency oscillator
linear amplifier
balanced modulator
radio frequency oscillator

B-003-06-09 (1)
In a single sideband transmitter, the output of the linear amplifier is connected to the _____.
antenna
filter
variable frequency oscillator
speech amplifier

B-003-07-01 (4)
In a digital system, the _____is controlled by the computer.
antenna
power supply
transceiver
input/output

B-003-07-02 (2)
In a digital system, the modem is connected to the _____.
amplifier
computer
antenna
input/output

B-003-07-03 (1)
In a digital system, the transceiver is connected to the _____.
modem
computer
scanner
input/output

B-003-07-04 (2)
In a digital system, the modem is connected to the _____.
input/output
transceiver
scanner
antenna

B-003-08-01 (2)
In a regulated power supply, the transformer connects to an external source which is referred to as _____.
regulator
input
filter
rectifier

B-003-08-02 (1)
In a regulated power supply, the _____ is between the input and the rectifier.
transformer
output
regulator
filter

B-003-08-03 (1)
In a regulated power supply, the _____ is between the transformer and the filter.
rectifier
input
output
regulator

B-003-08-04 (1)
In a regulated power supply, the output of the rectifier is connected to the _____.
filter
output
transformer
regulator

B-003-08-05 (1)
In a regulated power supply, the output of the filter connects to the _____.
regulator
transformer
rectifier
output

B-003-08-06 (1)
In a regulated power supply, the _____is connected to the regulator.
output
rectifier
input
transformer

B-003-09-01 (4)
In a Yagi-Uda 3 element directional antenna, the _____ is primarily for mechanical purposes.
reflector
driven element
director
boom

B-003-09-02 (3)
In a Yagi-Uda 3 element directional antenna, the _____ is the longest radiating element.
director
driven element
reflector
boom

B-003-09-03 (3)
In a Yagi-Uda 3 element directional antenna, the _____ is the shortest radiating element.
boom
reflector
director
driven element

B-003-09-04 (3)
In a Yagi-Uda 3 element directional antenna, the _____is not the longest nor the shortest radiating element.
boom
director
driven element
reflector

B-003-10-01 (3)
Which list of emission types is in order from the narrowest bandwidth to the widest bandwidth?
CW, SSB voice, RTTY, FM voice
CW, FM voice, RTTY, SSB voice
CW, RTTY, SSB voice, FM voice
RTTY, CW, SSB voice, FM voice

B-003-10-02 (1)
The figure in a receiver's specifications which indicates its sensitivity is the:
signal plus noise to noise ratio
audio output in watts
bandwidth of the IF in kilohertz
number of RF amplifiers

B-003-10-03 (3)
If two receivers of different sensitivity are compared, the less sensitive receiver will produce:
a steady oscillator drift
more than one signal
less signal or more noise
more signal or less noise

B-003-10-04 (4)
Which of the following modes of transmission is usually detected with a product detector?
Double sideband full carrier
Frequency modulation
Pulse modulation
Single sideband suppressed carrier

B-003-10-05 (3)
A receiver designed for SSB reception must have a BFO (beat frequency oscillator) because:
it beats with the received carrier to produce the other sideband
it reduces the passband of the IF stages
the suppressed carrier must be replaced for detection
it phases out the unwanted sideband signal

B-003-10-06 (3)
A receiver receives an incoming signal of 3.54 MHz, and the local oscillator produces a signal of 3.995 MHz. To which frequency should the IF be tuned?
7.435 MHz
3.995 MHz
455 kHz
3.54 MHz

B-003-10-07 (1)
What kind of filter would you use to attenuate an interfering carrier signal while receiving an SSB transmission?
A notch filter
A band pass filter
An all pass filter
A pi-network filter

B-003-10-08 (4)
The three main parameters against which the quality of a receiver is measured are:
selectivity, stability and frequency range
sensitivity, stability and cross-modulation
sensitivity, selectivity and image rejection
sensitivity, selectivity and stability

B-003-10-09 (2)
A communications receiver has four 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 single sideband, which filter would you utilize?
250 Hz
2.4 kHz
6 kHz
500 Hz

B-003-10-10 (4)
A communications receiver has four filters installed in it, one at 250 Hz, one at 500 Hz, one at 2.4 kHz and one at 6 kHz. You are copying a CW transmission and there is a great deal of interference. Which one of the filters would you choose?
500 Hz
2.4 kHz
6 kHz
250 Hz

B-003-10-11 (3)
Selectivity can be placed in the audio stages of a receiver by the utilization of RC active or passive audio filters. If you were to copy CW, which of the following bandpasses would you choose?
2100 - 2300 Hz
300 - 2700 Hz
750 - 850 Hz
100 - 1100 Hz

B-003-11-01 (2)
What does chirp mean?
A high-pitched tone which is received along with a CW signal
A small change in a transmitter's frequency each time it is keyed
A slow change in transmitter frequency as the circuit warms up
An overload in a receiver's audio circuit whenever CW is received

B-003-11-02 (2)
What can be done to keep a CW transmitter from chirping?
Add a key-click filter
Keep the power supply voltages very steady
Keep the power supply current very steady

B-003-11-03 (2)
What circuit has a variable-frequency oscillator connected to a driver and a power amplifier?
A crystal-controlled transmitter
A VFO-controlled transmitter
A single-sideband transmitter
A packet-radio transmitter

B-003-11-04 (2)
What type of modulation system changes the amplitude of an RF wave for the purpose of conveying information?
Phase modulation
Amplitude modulation
Amplitude-rectification modulation
Frequency modulation

B-003-11-05 (3)
In what emission type does the instantaneous amplitude (envelope) of the RF signal vary in accordance with the modulating audio?
Frequency modulation
Pulse modulation
Amplitude modulation
Frequency shift keying

B-003-11-06 (3)
Morse code is usually transmitted by radio as:
a series of key-clicks
a continuous carrier
an interrupted carrier
a voice-modulated carrier

B-003-11-07 (3)
A mismatched antenna or feedline may present an incorrect load to the transmitter. The result may be:
loss of modulation in the transmitted signal
the driver stage will not deliver power to the final
excessive heat produced in the final transmitter stage
the output tank circuit breaks down

B-003-11-08 (3)
One result of a slight mismatch between the power amplifier of a transmitter and the antenna would be:
smaller DC current drain
lower modulation percentage
reduced antenna radiation
radiated key-clicks

B-003-11-09 (3)
An RF oscillator should be electrically and mechanically stable. This is to ensure that the oscillator does not:
become over modulated
generate key-clicks
drift in frequency
cause undue distortion

B-003-11-10 (1)
The input power to the final stage of your transmitter is 200 watts and the output is 125 watts. What has happened to the remaining power?
It has been dissipated as heat loss
It has been used to provide greater efficiency
It has been used to provide negative feedback
It has been used to provide positive feedback

B-003-11-11 (2)
The difference between DC input power and RF output power of a transmitter RF amplifier:
is lost in the feed line
appears as heat dissipation
is due to oscillating
radiates from the antenna

B-003-12-01 (3)
What may happen if an SSB transmitter is operated with the microphone gain set too high?
It may cause interference to other stations operating on a higher frequency band
It may cause atmospheric interference in the air around the antenna
It may cause splatter interference to other stations operating near its frequency
It may cause digital interference to computer equipment

B-003-12-02 (4)
What may happen if an SSB transmitter is operated with too much speech processing?
It may cause digital interference to computer equipment
It may cause atmospheric interference in the air around the antenna
It may cause interference to other stations operating on a higher frequency band
It may cause splatter interference to other stations operating near its frequency

B-003-12-03 (2)
What is the term for the average power supplied to an antenna transmission line during one RF cycle, at the crest of the modulation envelope?
Peak output power
Peak envelope power
Average radio-frequency power
Peak transmitter power

B-003-12-04 (4)
What is the usual bandwidth of a single-sideband amateur signal?
1 kHz
2 kHz
Between 3 and 6 kHz
Between 2 and 3 kHz

B-003-12-05 (2)
In a typical single-sideband phone transmitter, what circuit processes signals from the balanced modulator and sends signals to the mixer?
IF amplifier
Filter
RF amplifier
Carrier oscillator

B-003-12-06 (1)
What is one advantage of carrier suppression in a double-sideband phone transmission?
More power can be put into the sidebands
Only half the bandwidth is required for the same information content
Greater modulation percentage is obtainable with lower distortion
Simpler equipment can be used to receive a double-sideband suppressed-carrier signal

B-003-12-07 (4)
What happens to the signal of an overmodulated single-sideband or double-sideband phone transmitter?
It becomes louder with no other effects
It occupies less bandwidth with poor high-frequency response
It has higher fidelity and improved signal-to-noise ratio
It becomes distorted and occupies more bandwidth

B-003-12-08 (1)
How should the microphone gain control be adjusted on a single-sideband phone transmitter?
For slight movement of the ALC meter on modulation peaks
For full deflection of the ALC meter on modulation peaks
For 100% frequency deviation on modulation peaks
For a dip in plate current

B-003-12-09 (4)
The purpose of a balanced modulator in an SSB transmitter is to:
make sure that the carrier and both sidebands are 180o out of phase
ensure that the percentage of modulation is kept constant
make sure that the carrier and both sidebands are in phase
suppress the carrier and pass on the two sidebands

B-003-12-10 (2)
In a SSB transmission, the carrier is:
transmitted with one sideband
reinserted at the receiver
inserted at the transmitter
of no use at the receiver

B-003-12-11 (2)
The automatic level control (ALC) in a SSB transmitter :
eliminates the transmitter distortion
controls the peak audio input so that the final amplifier is not overdriven
increases the occupied bandwidth
reduces the system noise

B-003-13-01 (4)
What may happen if an FM transmitter is operated with the microphone gain or deviation control set too high?
It may cause digital interference to computer equipment
It may cause atmospheric interference in the air around the antenna
It may cause interference to other stations operating on a higher frequency band
It may cause interference to other stations operating near its frequency

B-003-13-02 (1)
What may your FM hand-held or mobile transceiver do if you shout into its microphone?
It may cause interference to other stations operating near its frequency
It may cause digital interference to computer equipment
It may cause atmospheric interference in the air around the antenna
It may cause interference to other stations operating on a higher frequency band

B-003-13-03 (4)
What can you do if you are told your FM hand-held or mobile transceiver is overdeviating?
Talk louder into the microphone
Let the transceiver cool off
Change to a higher power level
Talk farther away from the microphone

B-003-13-04 (3)
What kind of emission would your FM transmitter produce if its microphone failed to work?
A frequency-modulated carrier
An amplitude-modulated carrier
An unmodulated carrier
A phase-modulated carrier

B-003-13-05 (1)
Why is FM voice best for local VHF/UHF radio communications?
It has high-fidelity audio which can be understood even when the signal is somewhat weak
The carrier is not detectable
It is more resistant to distortion caused by reflected signals
Its RF carrier stays on frequency better than the AM modes

B-003-13-06 (1)
What is the usual bandwidth of a frequency-modulated amateur signal?
Between 10 and 20 kHz
Less than 5 kHz
Between 5 and 10 kHz
Greater than 20 kHz

B-003-13-07 (1)
What is the result of overdeviation in an FM transmitter?
Out-of-channel emissions
Increased transmitter power
Increased transmitter range
Poor carrier suppression

B-003-13-08 (4)
What emission is produced by a reactance modulator connected to an RF power amplifier?
Multiplex modulation
Amplitude modulation
Pulse modulation
Phase modulation

B-003-13-09 (4)
Why isn't frequency modulated (FM) phone used below 29.5 MHz?
The transmitter efficiency for this mode is low
Harmonics could not be attenuated to practical levels
The frequency stability would not be adequate
The bandwidth would exceed limits in the Regulations

B-003-13-10 (1)
You are transmitting FM on the 2 metre band. Several stations advise you that your transmission is distorted. A quick check with a frequency counter tells you that the transmitter is on the proper frequency. Which of the following is the most probable cause of the distortion?
The frequency deviation of your transmitter is set too high
The power supply output voltage is low
The repeater is reversing your sidebands
The frequency counter is giving an incorrect reading and you are indeed off frequency

B-003-13-11 (4)
FM receivers perform in an unusual manner when two or more stations are present. The loudest signal, even though it is only two or three times as loud as the other signals, will be the only transmission demodulated. This is called:
attach effect
interference effect
surrender effect
capture effect

B-003-14-01 (1)
What do many amateurs use to help form good Morse code characters?
An electronic keyer
A key-operated on/off switch
A notch filter
A DTMF keypad

B-003-14-02 (1)
Where would you connect a microphone for voice operation?
To a transceiver
To a power supply
To an antenna switch
To an antenna

B-003-14-03 (3)
What would you connect to a transceiver for voice operation?
A receiver audio filter
A terminal-voice controller
A microphone
A splatter filter

B-003-14-04 (3)
Why might a dummy antenna get warm when in use?
Because it absorbs static electricity
Because it stores radio waves
Because it changes RF energy into heat
Because it stores electric current

B-003-14-05 (4)
What is the circuit called which causes a transmitter to automatically transmit when an operator speaks into its microphone?
VXO
VCO
VFO
VOX

B-003-14-06 (1)
What is the reason for using a properly adjusted speech processor with a single-sideband phone transmitter?
It improves signal intelligibility at the receiver
It reduces average transmitter power requirements
It reduces unwanted noise pickup from the microphone
It improves voice frequency fidelity

B-003-14-07 (1)
If a single-sideband phone transmitter is 100% modulated, what will a speech processor do to the transmitter's power?
It will add nothing to the output PEP
It will increase the output PEP
It will decrease the peak power output
It will decrease the average power output

B-003-14-08 (1)
When switching from receive to transmit:
the receiver should be muted
the transmit oscillator should be turned off
the receiving antenna should be connected
the power supply should be off

B-003-14-09 (2)
A switching system to enable the use of one antenna for a transmitter and receiver should also:
ground the antenna on receive
disable the unit not being used
switch between meters
disconnect the antenna tuner

B-003-14-10 (1)
An antenna changeover switch in a transmitter-receiver combination is necessary:
so that one antenna can be used for transmitter and receiver
to change antennas for operation on other frequencies
to prevent RF currents entering the receiver circuits
to allow more than one transmitter to be used

B-003-14-11 (3)
Which of the following components could be used as a dynamic microphone?
crystal earpiece
resistor
loudspeaker
capacitor

B-003-15-01 (4)
What does "connected" mean in a packet-radio link?
A telephone link is working between two stations
A message has reached an amateur station for local delivery
A transmitting and receiving station are using a digipeater, so no other contacts can take place until they are finished
A transmitting station is sending data to only one receiving station; it replies that the data is being received correctly

B-003-15-02 (2)
What does "monitoring" mean on a packet-radio frequency?
A member of the Amateur Auxiliary is copying all messages
A receiving station is displaying messages that may not be sent to it, and is not replying to any message
A receiving station is displaying all messages sent to it, and replying that the messages are being received correctly
Industry Canada is monitoring all messages

B-003-15-03 (3)
What is a digipeater?
A repeater built using only digital electronics parts
A repeater that changes audio signals to digital data
A packet-radio station that retransmits only data that is marked to be retransmitted
A packet-radio station that retransmits any data that it receives

B-003-15-04 (1)
What does "network" mean in packet radio?
A way of connecting packet-radio stations so data can be sent over long distances
A way of connecting terminal-node controllers by telephone so data can be sent over long distances
The connections on terminal-node controllers
The programming in a terminal-node controller that rejects other callers if a station is already connected

B-003-15-05 (4)
In packet-radio operation, what equipment connects to a terminal-node controller?
A transceiver and a modem
A DTMF keypad, a monitor and a transceiver
A DTMF microphone, a monitor and a transceiver
A transceiver and a terminal or computer system

B-003-15-06 (1)
How would you modulate a 2 meter FM transceiver to produce packet-radio emissions?
Connect a terminal-node controller to the transceiver's microphone input
Connect a terminal-node controller to interrupt the transceiver's carrier wave
Connect a keyboard to the transceiver's microphone input
Connect a DTMF key pad to the transceiver's microphone input

B-003-15-07 (3)
When selecting a RTTY transmitting frequency, what minimum frequency separation from a contact in progress should you allow (center to center) to minimize interference?
Approximately 6 kHz
Approximately 3 kHz
250 to 500 Hz
60 Hz

B-003-15-08 (3)
Digital transmissions use signals called _____ to transmit the states 1 and 0
packet and AMTOR
baudot and ASCII
mark and space
dot and dash

B-003-15-09 (2)
Which of the following terms does not apply to packet?
ASCII
Baudot
Terminal-Node Controller (TNC)
AX.25

B-003-15-10 (3)
When using AMTOR transmissions, there are two modes that may be utilized. Mode A uses Automatic Repeat Request (ARQ) protocol and is normally used:
at all times. Mode B is for test purposes only
only when communications have been completed
for communications after contact has been established
when making a general call

B-003-15-11 (4)
What is the most common data rate used for VHF packet communications?
300 baud
9600 baud
2400 baud
1200 baud

B-003-16-01 (3)
How much voltage does a standard automobile battery usually supply ?
About 240 volts
About 120 volts
About 12 volts
About 9 volts

B-003-16-02 (4)
Which component has a positive and a negative side?
A potentiometer
A fuse
A resistor
A battery

B-003-16-03 (3)
A cell, that can be repeatedly recharged by supplying it with electrical energy, is known as a:
low leakage cell
memory cell
storage cell
primary cell

B-003-16-04 (2)
Which of the following is a source of EMF?
germanium diode
lead acid battery
P channel FET
carbon resistor

B-003-16-05 (2)
An important difference between a conventional flashlight battery and a lead acid battery is that only the lead acid battery:
has two terminals
can be repeatedly recharged
can be completely discharged
contains an electrolyte

B-003-16-06 (2)
A dry cell has a nominal voltage of 1.5 volt. When supplying a great deal of current, the voltage may drop to 1.2 volt. This is due to the cell's:
electrolyte becoming dry
internal resistance
current capacity
voltage capacity

B-003-16-07 (1)
The most common primary cell in use today is the carbon-zinc or flashlight cell. This cell can be recharged:
never
twice
many times
once

B-003-16-08 (4)
All storage batteries have discharge limits, and nickel-cadmium, the type most used in hand-held portables, should not be discharged to less than:
0.5 volt per cell
1.5 volt per cell
0.2 volt per cell
1.0 volt per cell

B-003-16-09 (1)
To increase the current capacity of a cell, several cells should be connected in:
parallel
series
parallel resonant
series resonant

B-003-16-10 (4)
To increase the voltage output, several cells are connected in:
parallel
series-parallel
resonance
series

B-003-16-11 (1)
A nickel-cadmium battery should never be:
short-circuited
recharged
left disconnected
left overnight at room temperature

B-003-17-01 (1)
If your mobile transceiver works in your car but not in your home, what should you check first?
The power supply
The speaker
The microphone
The SWR meter

B-003-17-02 (2)
What device converts household current to 12 VDC?
A low pass filter
A power supply
An RS-232 interface
A catalytic converter

B-003-17-03 (3)
Which of these usually needs a heavy-duty power supply?
An antenna switch
A receiver
A transceiver
An SWR meter

B-003-17-04 (1)
What may cause a buzzing or hum in the signal of an AC-powered transmitter?
A bad filter capacitor in the transmitter's power supply
Using an antenna which is the wrong length
Energy from another transmitter
Bad design of the transmitter's RF power output circuit

B-003-17-05 (4)
A power supply is to supply DC at 12 volts at 5 amperes. The power transformer should be rated higher than:
17 watts
2.4 watts
6 watts
60 watts

B-003-17-06 (2)
The diode is an important part of a simple power supply. It converts AC to DC, since it:
has a high resistance to AC but not to DC
allows electrons to flow in only one direction from cathode to anode
has a high resistance to DC but not to AC
allows electrons to flow in only one direction from anode to cathode

B-003-17-07 (3)
To convert AC to pulsating DC, you could use a:
transformer
capacitor
diode
resistor

B-003-17-08 (1)
Power-line voltages have been made standard over the years and the voltages generally supplied to homes are approximately:
120 and 240 volts
110 and 220 volts
100 and 200 volts
130 and 260 volts

B-003-17-09 (4)
So-called "transformerless" power supplies are used in some applications (notably tube-type radios and TV receivers). When working on such equipment, one should be very careful because:
DC circuits are negative relative to the chassis
chassis connections are grounded by the centre pin of the power source's plug
the load across the power supply is variable
one side of the line cord is connected to the chassis

B-003-17-10 (2)
If household voltages are consistently high or low at your location, this can be corrected by the use of:
a full-wave bridge rectifier
an autotransformer
a variable voltmeter
a proper load resistance

B-003-17-11 (1)
You have a very loud low- frequency hum appearing on your transmission. In what part of the transmitter would you first look for the trouble?
the power supply
the variable-frequency oscillator
the driver circuit
the power amplifier circuit

B-003-18-01 (1)
How could you best keep unauthorized persons from using your amateur station at home?
Use a key-operated on/off switch in the main power line
Use a carrier-operated relay in the main power line
Put a "Danger - High Voltage" sign in the station
Put fuses in the main power line

B-003-18-02 (3)
How could you best keep unauthorized persons from using a mobile amateur station in your car?
Tune the radio to an unused frequency when you are done using it
Turn the radio off when you are not using it
Disconnect the microphone when you are not using it
Put a "Do not touch" sign on the radio

B-003-18-03 (4)
Why would you use a key- operated on/off switch in the main power line of your station?
For safety, in case the main fuses fail
To keep the power company from turning off your electricity during an emergency
For safety, to turn off the station in the event of an emergency
To keep unauthorized persons from using your station

B-003-18-04 (1)
Why would there be a switch in a high-voltage power supply to turn off the power if its cabinet is opened?
To keep anyone opening the cabinet from getting shocked by dangerous high voltages
To keep dangerous RF radiation from leaking out through an open cabinet
To keep dangerous RF radiation from coming in through an open cabinet
To turn the power supply off when it is not being used

B-003-18-05 (4)
How little electrical current flowing through the human body can be fatal?
Approximately 10 amperes
More than 20 amperes
Current flow through the human body is never fatal
As little as 1/10 of an ampere

B-003-18-06 (1)
Which body organ can be fatally affected by a very small amount of electrical current?
The heart
The brain
The liver
The lungs

B-003-18-07 (4)
What is the minimum voltage which is usually dangerous to humans?
100 volts
1000 volts
2000 volts
30 volts

B-003-18-08 (3)
What should you do if you discover someone who is being burned by high voltage?
Wait for a few minutes to see if the person can get away from the high voltage on their own, then try to help
Immediately drag the person away from the high voltage
Turn off the power, call for emergency help and give CPR if needed
Run from the area so you won't be burned too

B-003-18-09 (1)
What is the safest method to remove an unconscious person from contact with a high voltage source?
Turn off the high voltage switch before removing the person from contact with the source
Wrap the person in a blanket and pull him to a safe area
Call an electrician
Remove the person by pulling an arm or a leg

B-003-18-10 (1)
Before checking a fault in a mains operated power supply unit, it would be safest to FIRST:
turn off the power and remove power plug
short out leads of filter capacitor
check action of capacitor bleeder resistance
remove and check fuse from power supply

B-003-18-11 (1)
Fault finding in a power supply of an amateur transmitter while the supply is operating is not a recommended technique because of the risk of:
electric shock
damaging the transmitter
overmodulation
blowing the fuse

B-003-19-01 (2)
For best protection from electrical shock, what should be grounded in an amateur station?
The antenna feed line
All station equipment
The AC power line
The power supply primary

B-003-19-02 (1)
If a separate ground system is not possible for your amateur station, an alternative indoor grounding point could be:
a metallic cold water pipe
a plastic cold water pipe
a window screen
a metallic natural gas pipe

B-003-19-03 (1)
To protect you against electrical shock, the chassis of each piece of your station equipment should be connected to:
a good ground connection
a dummy load
insulated shock mounts
the antenna

B-003-19-04 (4)
Which of these materials is best for a ground rod driven into the earth?
Hard plastic
Iron or steel
Fiberglass
Copper-clad steel

B-003-19-06 (3)
Where should the green wire in a three-wire AC line cord be connected in a power supply?
To the white wire
To the "hot" side of the power switch
To the chassis
To the fuse

B-003-19-07 (3)
If your third-floor amateur station has a ground wire running 10.05 metres (33 feet) down to a ground rod, why might you get an RF burn if you touch the front panel of your HF transceiver?
Because of a bad antenna connection, allowing the RF energy to take an easier path out of the transceiver through you
Because the transceiver's heat-sensing circuit is not working to start the cooling fan
Because the ground wire is a resonant length on several HF bands and acts more like an antenna than an RF ground connection
Because the ground rod is not making good contact with moist earth

B-003-19-08 (3)
What is one good way to avoid stray RF energy in your amateur station?
Make a couple of loops in the ground wire where it connects to your station
Drive the ground rod at least 420 cm (14 feet) into the ground
Keep the station's ground wire as short as possible
Use a beryllium ground wire for best conductivity

B-003-19-09 (3)
Which statement about station grounding is true?
A ground loop is an effective way to ground station equipment
If the chassis of all station equipment is connected with a good conductor, there is no need to tie them to an earth ground
RF hot spots can occur in a station located above the ground floor if the equipment is grounded by a long ground wire
The chassis of each piece of station equipment should be tied together with high- impedance conductors

B-003-19-10 (4)
On mains operated power supplies, the ground wire should be connected to the metal chassis of the power supply. This ensures, in case there is a fault in the power supply, that the chassis:
does not become conductive to prevent electric shock
becomes conductive to prevent electric shock
develops a high voltage compared to the ground
does not develop a high voltage with respect to the ground

B-003-19-11 (2)
The purpose of using a three- wire power cord and plug on amateur radio equipment is to:
prevent the plug from being reversed in the wall outlet
prevent the chassis from becoming live in case of an internal short to the chassis
prevent short circuits
make it inconvenient to use

B-003-20-01 (2)
Why should you ground all antenna and rotator cables when your amateur station is not in use?
To lock the antenna system in one position
To protect the station and building from lightning damage
To avoid radio frequency interference
To make sure everything will stay in place

B-003-20-02 (4)
How can an antenna system be protected from lightning damage?
Install a balun at the antenna feed point
Install an RF choke in the antenna feed line
Install a fuse in the antenna feed line
Ground all antennas when they are not in use

B-003-20-03 (1)
How can amateur station equipment best be protected from lightning damage?
Disconnect all equipment from the power lines and antenna cables
Use heavy insulation on the wiring
Never turn off the equipment
Disconnect the ground system from all radios

B-003-20-04 (2)
What equipment should be worn for working on an antenna tower?
A reflective vest of approved color
Approved equipment in accordance with provincial safety standards concerning climbing
A flashing red, yellow or white light
A grounding chain

B-003-20-05 (3)
Why should you wear a safety belt if you are working on an antenna tower?
To safely bring any tools you might use up and down the tower
To keep the tower from becoming unbalanced while you are working
To prevent you from accidentally falling
To safely hold your tools so they don't fall and injure someone on the ground

B-003-20-06 (3)
For safety, how high should you place a horizontal wire antenna?
Above high-voltage electrical lines
Just high enough so you can easily reach it for adjustments or repairs
High enough so that no one can touch any part of it from the ground
As close to the ground as possible

B-003-20-07 (4)
Why should you wear a hard hat if you are on the ground helping someone work on an antenna tower?
So you won't be hurt if the tower should accidentally fall
To keep RF energy away from your head during antenna testing
So someone passing by will know that work is being done on the tower and will stay away
To protect your head from something dropped from the tower

B-003-20-08 (3)
Why should your outside antennas be high enough so that no one can touch them while you are transmitting?
Touching the antenna might reflect the signal back to the transmitter and cause damage
Touching the antenna might radiate harmonics
Touching the antenna might cause RF burns
Touching the antenna might cause television interference

B-003-20-09 (2)
Why should you make sure that no one can touch an open-wire feed line while you are transmitting with it?
Because contact might break the feed line
Because high-voltage radio energy might burn the person
Because contact might cause spurious emissions
Because contact might cause a short circuit and damage the transmitter

B-003-20-10 (1)
What safety precautions should you take before beginning repairs on an antenna?
Be sure to turn off the transmitter and disconnect the feed line
Be sure you and the antenna structure are grounded
Inform your neighbors so they are aware of your intentions
Turn off the main power switch in your house

B-003-20-11 (3)
What precaution should you take when installing a ground-mounted antenna?
It should be painted so people or animals do not accidentally run into it
It should not be installed in a wet area
It should be installed so no one can come in contact with it
It should not be installed higher than you can reach

B-003-21-01 (1)
What should you do for safety when operating at 1270 MHz?
Keep antenna away from your eyes when RF is applied
Make sure that an RF leakage filter is installed at the antenna feed point
Make sure the standing wave ratio is low before you conduct a test
Never use a horizontally polarized antenna

B-003-21-02 (2)
What should you do for safety if you put up a UHF transmitting antenna?
Make sure the antenna is near the ground to keep its RF energy pointing in the correct direction
Make sure the antenna will be in a place where no one can get near it when you are transmitting
Make sure you connect an RF leakage filter at the antenna feed point
Make sure that RF field screens are in place

B-003-21-03 (3)
What should you do for safety, before removing the shielding on a UHF power amplifier?
Make sure that RF leakage filters are connected
Make sure the antenna feed line is properly grounded
Make sure the amplifier cannot accidentally be turned on
Make sure all RF screens are in place at the antenna feed line

B-003-21-04 (2)
Why should you make sure the antenna of a hand-held transceiver is not close to your head when transmitting?
To use your body to reflect the signal in one direction
To reduce your exposure to the radio-frequency energy
To keep static charges from building up
To help the antenna radiate energy equally in all directions

B-003-21-05 (4)
How should you position the antenna of a hand-held transceiver while you are transmitting?
Pointed towards the station you are contacting
Pointed away from the station you are contacting
Pointed down to bounce the signal off the ground
Away from your head and away from others

B-003-21-06 (4)
How can exposure to a large amount of RF energy affect body tissue?
It causes radiation poisoning
It paralyzes the tissue
It produces genetic changes in the tissue
It heats the tissue

B-003-21-07 (2)
Which body organ is the most likely to be damaged from the heating effects of RF radiation?
Heart
Eyes
Liver
Hands

B-003-21-08 (4)
Depending on the wavelength of the signal, the energy density of the RF field, and other factors, in what way can RF energy affect body tissue?
It causes radiation poisoning
It causes blood flow to stop
It produces genetic changes in the tissue
It heats the tissue

B-003-21-09 (3)
If you operate your amateur station with indoor antennas, what precautions should you take when you install them?
Position the antennas parallel to electrical power wires to take advantage of parasitic effects
Position the antennas along the edge of a wall where it meets the floor or ceiling to reduce parasitic radiation
Locate the antennas as far away as possible from living spaces that will be occupied while you are operating
Locate the antennas close to your operating position to minimize feed-line length

B-003-21-10 (1)
Why should directional high- gain antennas be mounted higher than nearby structures?
So they will not direct RF energy toward people in nearby structures
So they will be dried by the wind after a heavy rain storm
So they will not damage nearby structures with RF energy
So they will receive more sky waves and fewer ground waves

B-003-21-11 (1)
For best RF safety, where should the ends and center of a dipole antenna be located?
As high as possible to prevent people from coming in contact with the antenna
Near or over moist ground so RF energy will be radiated away from the ground
As close to the transmitter as possible so RF energy will be concentrated near the transmitter
Close to the ground so simple adjustments can be easily made without climbing a ladder

B-004-01-01 (1)
A circuit designed to increase the level of its input signal is called:
an amplifier
a modulator
an oscillator
a receiver

B-004-01-02 (1)
If an amplifier becomes non- linear, the output signal would:
become distorted
be saturated
cause oscillations
overload the power supply

B-004-01-03 (3)
To increase the level of very weak radio signals from an antenna, you would use:
an RF oscillator
an audio oscillator
an RF amplifier
an audio amplifier

B-004-01-04 (3)
To increase the level of very weak signals from a microphone you would use:
an RF oscillator
an RF amplifier
an audio amplifier
an audio oscillator

B-004-01-05 (4)
The range of frequencies to be amplified by a speech amplifier is typically:
3 to 300 Hz
300 to 1000 Hz
40 to 40 000 Hz
300 to 3400 Hz

B-004-01-06 (2)
Which of the following IS NOT amplified by an amplifier?
current
resistance
power
voltage

B-004-01-07 (4)
The increase in signal level by an amplifier is called:
attenuation
amplitude
modulation
gain

B-004-01-08 (4)
A device with gain has the property of:
attenuation
oscillation
modulation
amplification

B-004-01-09 (4)
A device labelled "Gain = 10 dB" is likely to be an:
attenuator
oscillator
audio fader
amplifier

B-004-01-10 (2)
Amplifiers can amplify:
current, power, or inductance
voltage, current, or power
voltage, power, or inductance
voltage, current, or inductance

B-004-01-11 (4)
Which of the following is not a property of an amplifier?
gain
linearity
distortion
loss

B-004-02-01 (2)
Zener diodes are used as:
current regulators
voltage regulators
RF detectors
AF detectors

B-004-02-02 (4)
One important application for diodes is recovering information from transmitted signals. This is referred to as:
regeneration
ionization
biasing
demodulation

B-004-02-03 (2)
The primary purpose of a Zener diode is to:
provide a voltage phase shift
regulate or maintain a constant voltage
to boost the power supply voltage
provide a path through which current can flow

B-004-02-04 (2)
The action of changing alternating current to direct current is called:
amplification
rectification
transformation
modulation

B-004-02-05 (2)
The electrodes of a semi- conductor diode are known as:
gate and source
anode and cathode
collector and base
cathode and drain

B-004-02-06 (3)
If alternating current is applied to the anode of a diode, what would you expect to see at the cathode?
No signal
Steady direct current
Pulsating direct current
Pulsating alternating current

B-004-02-07 (4)
In a semi-conductor diode, electrons flow from:
anode to cathode
cathode to grid
grid to anode
cathode to anode

B-004-02-08 (1)
What semi-conductor device glows red, yellow, or green, depending upon its chemical composition?
A light-emitting diode
A fluorescent bulb
A neon bulb
A vacuum diode

B-004-02-09 (4)
Voltage regulation is the principal application of the:
junction diode
light-emitting diode
vacuum diode
Zener diode

B-004-02-10 (2)
In order for a diode to conduct, it must be:
close coupled
forward-biased
enhanced
reverse-biased

B-004-03-01 (2)
Which component can amplify a small signal using low voltages?
A variable resistor
An electrolytic capacitor
A multiple-cell battery
A PNP transistor

B-004-03-02 (3)
The basic semi-conductor amplifying device is the:
tube
P-N junction
transistor
diode

B-004-03-03 (2)
The three leads from a PNP transistor are named:
drain, base and source
collector, emitter and base
collector, source and drain
gate, source and drain

B-004-03-04 (4)
If a low level signal is placed at the input to a transistor, a higher level of signal is produced at the output lead. This effect is know as:
detection
modulation
rectification
amplification

B-004-03-05 (2)
Bipolar transistors usually have:
2 leads
3 leads
1 lead
4 leads

B-004-03-06 (1)
A semi-conductor is described as a "general purpose audio NPN device". This would be:
a bipolar transistor
a silicon diode
a triode
an audio detector

B-004-03-07 (2)
The two basic types of bipolar transistors are:
diode and triode types
NPN and PNP types
varicap and zener types
P and N channel types

B-004-03-08 (1)
A transistor can be destroyed in a circuit by:
excessive heat
excessive light
saturation
cut-off

B-004-03-09 (2)
In a bipolar transistor, the _____compares closest to the control grid of a triode vacuum tube.
emitter
base
source
collector

B-004-03-10 (3)
In a bipolar transistor, the _____compares closest to the plate of a triode vacuum tube.
gate
emitter
collector
base

B-004-03-11 (4)
In a bipolar transistor, the _____ compares closest to the cathode of a triode vacuum tube.
collector
base
drain
emitter

B-004-04-01 (4)
The two basic types of field effect transistors (FET) are:
NPN and PNP
germanium and silicon
inductive and capacitive
N and P channel

B-004-04-02 (2)
A semi-conductor having its leads labeled gate, drain, and source is best described as a:
gated transistor
field-effect transistor
bipolar transistor
silicon diode

B-004-04-03 (1)
In a field effect transistor, the _____ is the terminal that controls the conductance of the channel.
gate
drain
source
collector

B-004-04-04 (1)
In a field effect transistor, the _____is the terminal where the charge carriers enter the channel.
source
gate
drain
emitter

B-004-04-05 (3)
In a field effect transistor, the _____ is the terminal where the charge carriers leave the channel.
collector
source
drain
gate

B-004-04-06 (3)
Which semi-conductor device has characteristics most similar to a triode vacuum tube?
Junction diode
Zener diode
Field effect transistor
Bipolar transistor

B-004-04-07 (1)
The control element in the field effect transistor is the:
gate
source
drain
base

B-004-04-08 (1)
If you wish to reduce the current flowing in a field effect transistor, you could:
increase the reverse bias voltage
decrease the reverse bias voltage
increase the forward bias voltage
increase the forward bias gain

B-004-04-09 (2)
The source of a field effect transistor corresponds to the _____ of a bipolar transistor.
base
emitter
drain
collector

B-004-04-10 (2)
The drain of a field effect transistor corresponds to the _____ of a bipolar transistor.
base
collector
source
emitter

B-004-04-11 (4)
Which two elements in a field effect transistor exhibit fairly similar characteristics?
Source and gate
Gate and drain
Source and base
Source and drain

B-004-05-01 (2)
What is one reason a triode vacuum tube might be used instead of a transistor in a circuit?
It uses less current
It may be able to handle higher power
It is much smaller
It uses lower voltages

B-004-05-02 (1)
Which component can amplify a small signal but must use high voltages?
A vacuum tube
A transistor
An electrolytic capacitor
A multiple-cell battery

B-004-05-03 (2)
A feature common to tubes and transistors is that both:
have electrons drifting through a vacuum
can amplify signals
convert electrical energy to radio waves
use heat to cause electron movement

B-004-05-04 (2)
In a vacuum tube, the electrode that is operated with the highest positive potential is the _____.
filament (heater)
plate
cathode
grid

B-004-05-05 (2)
In a vacuum tube, the electrode that is usually a cylinder of wire mesh is the _____.
filament (heater)
grid
cathode
plate

B-004-05-06 (4)
In a vacuum tube, the element that is furthest away from the plate is the _____.
grid
emitter
cathode
filament (heater)

B-004-05-07 (1)
In a vacuum tube, the electrode that emits electrons is the _____.
cathode
grid
collector
plate

B-004-05-08 (2)
What is inside the envelope of a triode tube?
argon
a vacuum
air
neon

B-004-05-09 (4)
How many grids are there in a triode vacuum tube?
two
three
three plus a filament
one

B-004-05-10 (2)
If you do not wish to have current flowing in the grid circuit of a vacuum tube, the grid should be:
positive with respect to the anode
negative with respect to the cathode
positive with respect to both cathode and anode
positive with respect to the cathode

B-004-05-11 (2)
The negative DC control voltage applied to the control grid of a vacuum tube is called:
suppression voltage
bias voltage
repulsion voltage
excitation voltage

B-004-06-01 (2)
How do you find a resistor's tolerance rating?
By using Thevenin's theorem for resistors
By reading the resistor's color code
By reading its Baudot code
By using a voltmeter

B-004-06-02 (3)
What do the first three-color bands on a resistor indicate?
The resistance material
The power rating in watts
The value of the resistor in ohms
The resistance tolerance in percent

B-004-06-03 (4)
What does the fourth color band on a resistor mean?
The value of the resistor in ohms
The power rating in watts
The resistance material
The resistance tolerance in percent

B-004-06-04 (1)
What are the possible values of a 100 ohm resistor with a 10% tolerance?
90 to 110 ohms
90 to 100 ohms
10 to 100 ohms
80 to 120 ohms

B-004-06-05 (1)
How do you find a resistor's value?
By using the resistor's color code
By using a voltmeter
By using Thevenin's theorem for resistors
By using the Baudot code

B-004-06-06 (4)
Which tolerance rating would a high-quality resistor have?
5%
10%
20%
0.1%

B-004-06-07 (1)
Which tolerance rating would a low-quality resistor have?
20%
0.1%
5%
10%

B-004-06-08 (2)
If a carbon resistor's temperature is increased, what will happen to the resistance?
It will stay the same
It will change depending on the resistor's temperature coefficient rating
It will become time dependent
It will increase by 20% for every 10 degrees centigrade

B-004-06-09 (3)
A gold band on a resistor indicates the tolerance is:
20%
10%
5%
1%

B-004-06-10 (1)
A resistor with a colour code of brown, black, and red, would have a value of:
1000 ohms
100 ohms
10 ohms
10 000 ohms

B-004-06-11 (4)
A resistor is marked with the colors red, violet and yellow. This resistor has a value of:
274
72 k
27 M
270 k

B-005-01-01 (2)
If a dial marked in megahertz shows a reading of 3.525 MHz, what would it show if it were marked in kilohertz?
35.25 kHz
3525 kHz
3 525 000 kHz
0.003525 kHz

B-005-01-02 (1)
If an ammeter marked in amperes is used to measure a 3000 milliampere current, what reading would it show?
3 amperes
0.003 ampere
0.3 ampere
3 000 000 amperes

B-005-01-03 (1)
If a voltmeter marked in volts is used to measure a 3500 millivolt potential, what reading would it show?
3.5 volts
0.35 volt
35 volts
350 volts

B-005-01-04 (3)
How many microfarads is 1 000 000 picofarads?
1 000 000 000 microfarads
1000 microfarads
1 microfarad
0.001 microfarad

B-005-01-05 (2)
If you have a hand-held transceiver which puts out 500 milliwatts, how many watts would this be?
5
0.5
50
0.02

B-005-01-06 (4)
A kilohm is:
0.1 ohm
0.001 ohm
10 ohms
1000 ohms

B-005-01-07 (1)
6.6 kilovolts is equal to:
6600 volts
660 volts
66 volts
66 000 volts

B-005-01-08 (4)
A current of one quarter ampere may be written as:
0.5 amperes
0.25 milliampere
250 microampere
250 milliamperes

B-005-01-09 (2)
How many millivolts are equivalent to two volts?
0.000002
2 000
2 000 000
0.002

B-005-01-10 (1)
One megahertz is equal to:
1 000 kHz
100 kHz
0.001 Hz
10 Hz

B-005-01-11 (4)
An inductance of 10 000 microhenrys may be stated correctly as:
100 millihenrys
10 henrys
1 000 henrys
10 millihenrys

B-005-02-01 (2)
Name three good electrical conductors.
Gold, silver, wood
Gold, silver, aluminum
Copper, aluminum, paper
Copper, gold, mica

B-005-02-02 (3)
Name four good electrical insulators.
Plastic, rubber, wood, carbon
Paper, glass, air, aluminum
Glass, air, plastic, porcelain
Glass, wood, copper, porcelain

B-005-02-03 (4)
Why do resistors sometimes get hot when in use?
Their reactance makes them heat up
Hotter circuit components nearby heat them up
They absorb magnetic energy which makes them hot
Some electrical energy passing through them is lost as heat

B-005-02-04 (4)
What is the best conductor among the following materials?
carbon
silicon
aluminium
copper

B-005-02-05 (1)
The material listed, which will most readily allow an electric current to flow, is called?
a conductor
an insulator
a resistor
a dielectric

B-005-02-06 (4)
A length of metal is connected in a circuit and is found to conduct electricity very well. It would be best described as having a:
high resistance
high wattage
low wattage
low resistance

B-005-02-07 (2)
The letter "R" is the symbol for:
impedance
resistance
reluctance
reactance

B-005-02-08 (1)
The reciprocal of resistance is:
conductance
reactance
reluctance
permeability

B-005-02-09 (1)
Voltage drop means:
voltage developed across the terminals of a component
any point in a radio circuit which has zero voltage
difference in voltage at output terminals of a transformer
the voltage which is dissipated before useful work is accomplished

B-005-02-10 (2)
The resistance of a conductor changes with:
voltage
temperature
current
humidity

B-005-02-11 (1)
The most common material used to make a resistor is:
carbon
gold
mica
lead

B-005-03-01 (2)
What is the word used to describe how fast electrical energy is used?
Current
Power
Voltage
Resistance

B-005-03-02 (3)
If you have light bulbs marked 40 watts, 60 watts and 100 watts, which one will use electrical energy the fastest?
They will all be the same
The 40 watt bulb
The 100 watt bulb
The 60 watt bulb

B-005-03-03 (3)
What is the basic unit of electrical power?
The ampere
The volt
The watt
The ohm

B-005-03-04 (2)
Which electrical circuit will have no current?
A short circuit
An open circuit
A complete circuit
A closed circuit

B-005-03-05 (2)
Which electrical circuit uses too much current?
A dead circuit
A short circuit
A closed circuit
An open circuit

B-005-03-06 (3)
Power is expressed in:
volts
amperes
watts
ohms

B-005-03-07 (3)
Which of the following two quantities should be multiplied together to find power?
Inductance and capacitance
Voltage and inductance
Voltage and current
Resistance and capacitance

B-005-03-08 (4)
Which two electrical units multiplied together give the unit "watts"?
Volts and farads
Farads and henrys
Amperes and henrys
Volts and amperes

B-005-03-09 (4)
A resistor in a circuit becomes very hot and starts to burn. This is because the resistor is dissipating too much:
voltage
resistance
current
power

B-005-03-10 (3)
High power resistors are usually large with heavy leads. The size aids the operation of the resistor by:
allowing higher voltage to be handled
increasing the effective resistance of the resistor
allowing heat to dissipate more readily
making it shock proof

B-005-03-11 (3)
The resistor that could dissipate the most heat would be marked:
100 ohms
2 ohms
20 watts
0.5 watt

B-005-04-01 (3)
If a current of 2 amperes flows through a 50-ohm resistor, what is the voltage across the resistor?
48 volts
52 volts
100 volts
25 volts

B-005-04-02 (1)
How is the current in a DC circuit calculated when the voltage and resistance are known?
Current equals voltage divided by resistance
Current equals resistance multiplied by voltage
Current equals resistance divided by voltage
Current equals power divided by voltage

B-005-04-03 (2)
How is the resistance in a DC circuit calculated when the voltage and current are known?
Resistance equals current multiplied by voltage
Resistance equals voltage divided by current
Resistance equals power divided by voltage
Resistance equals current divided by voltage

B-005-04-04 (4)
How is the voltage in a DC circuit calculated when the current and resistance are known?
Voltage equals current divided by resistance
Voltage equals resistance divided by current
Voltage equals power divided by current
Voltage equals current multiplied by resistance

B-005-04-05 (2)
If a 12-volt battery supplies 0.25 ampere to a circuit, what is the circuit's resistance?
3 ohms
48 ohms
12 ohms
0.25 ohm

B-005-04-06 (1)
Calculate the value of resistance necessary to drop 100 volts with current flow of .8 milliamperes:
125 kilohms
125 ohms
1250 ohms
1.25 kilohms

B-005-04-07 (1)
The voltage required to force a current of 4.4 amperes through a resistance of 50 ohms is:
220 volts
2220 volts
22.0 volts
0.220 volt

B-005-04-08 (4)
A lamp has a resistance of 30 ohms and a 6 volt battery is connected. The current flow will be:
2 amperes
0.5 ampere
0.005 ampere
0.2 ampere

B-005-04-09 (1)
What voltage would be needed to supply a current of 200 mA, to operate an electric lamp which has a resistance of 25 ohms?
5 volts
8 volts
175 volts
225 volts

B-005-04-10 (1)
The resistance of a circuit can be found by using one of the following:
R = E/I
R = I/E
R = E/R
R = E X I

B-005-04-11 (1)
If a 3 volt battery supplies 300 mA to a circuit, the circuit resistance is:
10 ohms
9 ohms
5 ohms
3 ohms

B-005-05-01 (1)
In a parallel circuit with a voltage source and several branch resistors, how is the total current related to the current in the branch resistors?
It equals the sum of the branch current through each resistor
It equals the average of the branch current through each resistor
It decreases as more parallel resistors are added to the circuit
It is the sum of each resistor's voltage drop multiplied by the total number of resistors

B-005-05-02 (1)
A 6 volt battery is connected across three resistances of connected in parallel. The current through the 10 ohms, 15 ohms and 20 ohms separate resistances, when added together, equals the total current drawn from the battery
The current flowing through the 10 ohm resistance is less than that flowing through the 20 ohm resistance
The voltage drop across each resistance added together equals 6 volts
The voltage drop across the 20 ohm resistance is greater than the voltage across the 10 ohm resistance

B-005-05-03 (1)
Total resistance in a parallel circuit:
is always less than the smallest resistance
depends upon the IR drop across each branch
could be equal to the resistance of one branch
depends upon the applied voltage

B-005-05-04 (1)
Two resistors are connected in parallel and are connected across a 40 volt battery. If each resistor is 1000 ohms, the total current is:
80 milliamperes
40 milliamperes
80 amperes
40 amperes

B-005-05-05 (1)
The total resistance of resistors connected in series is:
greater than the resistance of any one resistor
less than the resistance of any one resistor
equal to the highest resistance present
equal to the lowest resistance present

B-005-05-06 (1)
Five 10 ohm resistors connected in series equals:
50 ohms
5 ohms
10 ohms
1 ohm

B-005-05-07 (4)
Which series combination of resistors would replace a single 120 ohm resistor?
six 22 ohm
two 62 ohm
five 100 ohm
five 24 ohm

B-005-05-08 (2)
If ten resistors of equal value were wired in parallel, the total resistance would be:
10 / R
R / 10
10 x R
10 + R

B-005-05-09 (4)
The total resistance of four 68 ohm resistors wired in parallel is:
12 ohms
34 ohms
272 ohms
17 ohms

B-005-05-10 (3)
Two resistors are in parallel. Resistor A carries twice the current of resistor B, which means that:
the voltage across B is twice that across A
the voltage across A is twice that across B
A has half the resistance of B
B has half the resistance of A

B-005-05-11 (2)
The total current in a parallel circuit is equal to the:
source voltage divided by the value of one of the resistive elements
sum of the currents through all the parallel branches
source voltage divided by the sum of the resistive elements
current in any one of the parallel branches

B-005-06-01 (4)
Why would a large size resistor be used instead of a smaller one of the same resistance?
For better response time
For a higher current gain
For less impedance in the circuit
For greater power dissipation

B-005-06-02 (1)
How many watts of electrical power are used by a 12-VDC light bulb that draws 0.2 ampere?
2.4 watts
60 watts
24 watts
6 watts

B-005-06-03 (2)
The DC input power of a transmitter operating at 12 volts and drawing 500 milliamps would be:
20 watts
6 watts
500 watts
12 watts

B-005-06-04 (2)
When two 500 ohm 1 watt resistors are connected in series, the maximum total power that can be dissipated by the resistors is:
1 watt
2 watts
1/2 watt
4 watts

B-005-06-05 (3)
When two 500 ohm 1 watt resistors are connected in parallel, they can dissipate a maximum total power of:
1/2 watt
1 watt
2 watts
4 watts

B-005-06-06 (1)
If the voltage applied to two resistors in series is doubled, how much will the total power change?
increase four times
decrease to half
double
no change

B-005-06-07 (4)
If the power is 500 watts and the resistance is 20 ohms, the current is:
2.5 amps
10 amps
25 amps
5 amps

B-005-06-08 (1)
A 12 volt light bulb is rated at a power of 30 watts. The current drawn would be:
30/12 amps
18 amps
360 amps
12/30 amps

B-005-06-09 (1)
If two 10 ohm resistors are connected in series with a 10 volt battery, the power consumption would be:
5 watts
10 watts
20 watts
100 watts

B-005-06-10 (3)
One advantage of replacing a 50 ohm resistor with a parallel combination of two similarly rated 100 ohm resistors is that the parallel combination will have:
the same resistance but lesser power rating
greater resistance and similar power rating
the same resistance but greater power rating
lesser resistance and similar power rating

B-005-06-11 (3)
Resistor wattage ratings are:
calculated according to physical size
expressed in joules per second
determined by heat dissipation qualities
variable in steps of one hundred

B-005-07-01 (3)
What term means the number of times per second that an alternating current flows back and forth?
Speed
Pulse rate
Frequency
Inductance

B-005-07-02 (3)
Approximately what frequency range can most humans hear?
20 000 - 30 000 Hz
200 - 200 000 Hz
20 - 20 000 Hz
0 - 20 Hz

B-005-07-03 (4)
Why do we call signals in the range 20 Hz to 20 000 Hz audio frequencies?
Because the human ear cannot sense anything in this range
Because this range is too low for radio energy
Because the human ear can sense radio waves in this range
Because the human ear can sense sounds in this range

B-005-07-04 (1)
Electrical energy at a frequency of 7125 kHz is in what frequency range?
Radio
Audio
Hyper
Super-high

B-005-07-05 (1)
What is the name for the distance an AC signal travels during one complete cycle?
Wavelength
Wave speed
Waveform
Wave spread

B-005-07-06 (4)
What happens to a signal's wavelength as its frequency increases?
It gets longer
It stays the same
It disappears
It gets shorter

B-005-07-07 (3)
What happens to a signal's frequency as its wavelength gets longer?
It disappears
It stays the same
It goes down
It goes up

B-005-07-08 (2)
What does 60 hertz (Hz) mean?
6000 metres per second
60 cycles per second
60 metres per second
6000 cycles per second

B-005-07-09 (3)
If the frequency of the waveform is 100 Hz, the time for one cycle is:
10 seconds
0.0001 second
0.01 second
1 second

B-005-07-10 (1)
Current in an AC circuit goes through a complete cycle in 0.1 second. This means the AC has a frequency of:
10 Hz
1 Hz
100 Hz
1000 Hz

B-005-07-11 (4)
A signal is composed of a fundamental frequency of 2 kHz and another of 4 kHz. This 4 kHz signal is referred to as:
a fundamental of the 2 kHz signal
the DC component of the main signal
a dielectric signal of the main signal
a harmonic of the 2 kHz signal

B-005-08-01 (2)
A two-times increase in power results in a change of how many dB?
6 dB higher
3 dB higher
12 dB higher
1 dB higher

B-005-08-02 (4)
How can you decrease your transmitter's power by 3 dB?
Divide the original power by 1.5
Divide the original power by 3
Divide the original power by 4
Divide the original power by 2

B-005-08-03 (3)
How can you increase your transmitter's power by 6 dB?
Multiply the original power by 3
Multiply the original power by 2
Multiply the original power by 4
Multiply the original power by 1.5

B-005-08-04 (4)
If a signal-strength report is "10 dB over S9", what should the report be if the transmitter power is reduced from 1500 watts to 150 watts?
S9 plus 3 dB
S9 minus 10 dB
S9 plus 5 dB
S9

B-005-08-05 (1)
If a signal-strength report is "20 dB over S9", what should the report be if the transmitter power is reduced from 1500 watts to 150 watts?
S9 plus 10 dB
S9 plus 5 dB
S9 plus 3 dB
S9

B-005-08-06 (2)
The unit "decibel" is used to indicate:
an oscilloscope wave form
a mathematical ratio
certain radio waves
a single side band signal

B-005-08-07 (3)
The power output from a transmitter increases from 1 watt to 2 watts. This is a db increase of:
30
6
3
1

B-005-08-08 (2)
The power of a transmitter is increased from 5 watts to 50 watts by a linear amplifier. The power gain, expressed in dB, is:
30 dB
10 dB
40 dB
20 dB

B-005-08-09 (2)
You add a 9 dB gain amplifier to your 2 watt handheld. What is the power output of the combination?
11 watts
16 watts
20 watts
18 watts

B-005-08-10 (1)
The power of a transmitter is increased from 2 watts to 8 watts. This is a power gain of _____ dB.
6 dB
3 dB
8 dB
9 dB

B-005-08-11 (4)
A local amateur reports your 100W 2M simplex VHF transmission as 30 dB over S9. To reduce your signal to S9, you would reduce your power to _____ watts.
1 W
10 W
33.3 W
100 mW

B-005-09-01 (4)
If two equal-value inductors are connected in series, what is their total inductance?
Half the value of one inductor
The same as the value of either inductor
The value of one inductor times the value of the other
Twice the value of one inductor

B-005-09-02 (4)
If two equal-value inductors are connected in parallel, what is their total inductance?
Twice the value of one inductor
The same as the value of either inductor
The value of one inductor times the value of the other
Half the value of one inductor

B-005-09-03 (4)
If two equal-value capacitors are connected in series, what is their total capacitance?
Twice the value of one capacitor
The same as the value of either capacitor
The value of one capacitor times the value of the other
Half the value of either capacitor

B-005-09-04 (2)
If two equal-value capacitors are connected in parallel, what is their total capacitance?
The same as the value of either capacitor
Twice the value of one capacitor
The value of one capacitor times the value of the other
Half the value of one capacitor

B-005-09-05 (3)
What determines the inductance of a coil?
The core material, the number of turns used to wind the core and the frequency of the current through the coil
The core diameter, the number of turns of wire used to wind the coil and the type of metal used for the wire
The core material, the core diameter, the length of the coil and the number of turns of wire used to wind the coil
The core material, the core diameter, the length of the coil and whether the coil is mounted horizontally or vertically

B-005-09-06 (1)
What determines the capacitance of a capacitor?
The material between the plates, the area of one side of one plate, the number of plates and the spacing between the plates
The material between the plates, the number of plates and the size of the wires connected to the plates
The number of plates, the spacing between the plates and whether the dielectric material is N type or P type
The material between the plates, the area of one plate, the number of plates and the material used for the protective coating

B-005-09-07 (4)
If two equal-value capacitors are connected in parallel, what is their capacitance?
The same value of either capacitor
The value of one capacitor times the value of the other
Half the value of either capacitor
Twice the value of either capacitor

B-005-09-08 (2)
To replace a faulty 10 millihenry choke, you could use two:
Two 20 millihenry chokes in series
Two 5 millihenry chokes in series
Two 30 millihenry chokes in parallel
Two 5 millihenry chokes in parallel

B-005-09-09 (3)
Three 15 microfarad capacitors are wired in series. The total capacitance of this arrangement is:
45 microfarads
12 microfarads
5 microfarads
18 microfarads

B-005-09-10 (2)
Which series combinations of capacitors would best replace a faulty 10 microfarad capacitor?
two 10 microfarad capacitors
two 20 microfarad capacitors
twenty 2 microfarad capacitors
ten 2 microfarad capacitors

B-005-09-11 (3)
The total capacitance of two or more capacitors in series is:
found by adding each of the capacitors together and dividing by the total number of capacitors
found by adding each of the capacitors together
always less than the smallest capacitor
always greater than the largest capacitor

B-005-10-01 (3)
How does a coil react to AC?
As the amplitude of the applied AC increases, the reactance decreases
As the amplitude of the applied AC increases, the reactance increases
As the frequency of the applied AC increases, the reactance increases
As the frequency of the applied AC increases, the reactance decreases

B-005-10-02 (1)
How does a capacitor react to AC?
As the frequency of the applied AC increases, the reactance decreases
As the frequency of the applied AC increases, the reactance increases
As the amplitude of the applied AC increases, the reactance increases
As the amplitude of the applied AC increases, the reactance decreases

B-005-10-03 (2)
The reactance of capacitors increases as:
applied voltage increases
AC frequency decreases
applied voltage decreases
AC frequency increases

B-005-10-04 (3)
In inductances, AC may be opposed by both resistance of winding wire and reactance due to inductive effect. The term which includes resistance and reactance is:
resonance
inductance
impedance
capacitance

B-005-10-05 (1)
Capacitive reactance:
decreases as frequency increases
applies only to series RLC circuits
increases as frequency increases
increases with the time constant

B-005-10-06 (4)
Inductive reactance may be increased by:
a decrease in the applied frequency
a decrease in the supplied current
an increase in the applied voltage
an increase in the applied frequency

B-005-10-07 (2)
A choke coil of 4.25 microhenrys is used in a circuit at a frequency of 200 MHz. Its reactance is approximately:
5 740 ohms
5 340 ohms
7 540 ohms
4 750 ohms

B-005-10-08 (1)
The capacitive reactance of a 25 microfarad capacitor connected to a 60 hertz line is:
106.1 ohms
9 420 ohms
2.4 ohms
1 500 ohms

B-005-10-09 (4)
A power-supply filter has a capacitor of 10 microfarad. What is the capacitive reactance of this capacitor to a frequency of 60 hertz?
200 ohms
100 ohms
500 ohms
265 ohms

B-005-10-10 (1)
What is the approximate inductive reactance of a 1 henry choke coil used in a 60 hertz circuit?
376 ohms
3760 ohms
188 ohms
1888 ohms

B-005-10-11 (1)
In general, the reactance of inductors increases with:
increasing AC frequency
decreasing AC frequency
decreasing applied voltage
increasing applied voltage

B-005-11-01 (1)
If no load is attached to the secondary winding of a transformer, what is current in the primary winding called?
Magnetizing current
Direct current
Excitation current
Stabilizing current

B-005-11-02 (1)
A transformer operates a 6.3 volt 2 ampere light bulb from its secondary winding. The power consumed by the primary winding is approximately:
13 watts
6 watts
8 watts
3 watts

B-005-11-03 (4)
A transformer has a 240 volt primary that draws a current of 250 mA from the mains supply. Assuming no losses, what current would be available from a 12 volt secondary?
215 amperes
25 amperes
50 amperes
5 amperes

B-005-11-04 (2)
In a mains power transformer, the primary winding has 250 turns, and the secondary has 500. If the input voltage is 110 volts, the likely secondary voltage is:
440 V
220 V
560 V
24 V

B-005-11-05 (3)
The strength of the magnetic field around a conductor in air is:
inversely proportional to the diameter of the conductor
directly proportional to the diameter of the conductor
directly proportional to the current in the conductor
inversely proportional to the voltage on the conductor

B-005-11-06 (1)
Maximum induced voltage in a coil occurs when:
current is going through its greatest rate of change
the current through the coil is of a DC nature
current is going through its least rate of change
the magnetic field around the coil is not changing

B-005-11-07 (3)
The voltage induced in a conductor moving in a magnetic field is at a maximum when the movement is:
made in a counterclockwise direction
parallel to the lines of force
perpendicular to the lines of force
made in a clockwise direction

B-005-11-08 (3)
A 100% efficient transformer has a turns ratio of 1/5. If the secondary current is 50 mA, the primary current is:
2 500 mA
0.01 A
0.25 A
0.25 mA

B-005-11-09 (4)
A force of repulsion exists between two _____ magnetic poles.
unlike
positive
negative
like

B-005-11-10 (4)
A permanent magnet would most likely be made from:
copper
aluminum
brass
steel

B-005-11-11 (3)
The fact that energy transfer from primary to secondary windings in a power transformer is not perfect is indicated by:
electrostatic shielding
large secondary currents
warm iron laminations
high primary voltages

B-005-12-01 (1)
Resonance is the condition that exists when:
inductive reactance and capacitive reactance are equal
inductive reactance is the only opposition in the circuit
the circuit contains no resistance
resistance is equal to the reactance

B-005-12-02 (4)
Parallel tuned circuits offer:
low impedance at resonance
zero impedance at resonance
an impedance equal to resistance of the circuit
very high impedance at resonance

B-005-12-03 (4)
Resonance is an electrical property used to describe:
an inductor
a set of parallel inductors
the results of tuning a varicap (varactor)
the frequency characteristic of a coil and capacitor circuit

B-005-12-04 (4)
A tuned circuit is formed from two basic components. These are:
resistors and transistors
directors and reflectors
diodes and transistors
inductors and capacitors

B-005-12-05 (1)
When a parallel coil-capacitor combination is supplied with AC of different frequencies, there will be one frequency where the impedance will be highest. This is the:
resonant frequency
impedance frequency
inductive frequency
reactive frequency

B-005-12-06 (4)
In a parallel-resonant circuit at resonance, the circuit has a:
low impedance
low mutual inductance
high mutual inductance
high impedance

B-005-12-07 (1)
In a series resonant circuit at resonance, the circuit has:
low impedance
high impedance
low mutual inductance
high mutual inductance

B-005-12-08 (4)
A coil and an air-spaced capacitor are arranged to form a resonant circuit. The resonant frequency will remain the same if we:
increase the area of plates in the capacitor
replace the air dielectric with oil in the capacitor
wind more turns on the coil
add a resistor to the circuit

B-005-12-09 (2)
Resonant circuits in a receiver are used to:
filter direct current
select signal frequencies
increase power
adjust voltage levels

B-005-12-10 (1)
Resonance is the condition that exists when:
inductive reactance and capacitive reactance are equal and opposite in sign
inductive reactance is the only opposition in the circuit
the circuit contains no resistance
resistance is equal to the reactance

B-005-12-11 (3)
When a series LCR circuit is tuned to the frequency of the source, the:
line current lags the applied voltage
line current leads the applied voltage
line current reaches maximum
impedance is maximum

B-005-13-01 (4)
How is a voltmeter usually connected to a circuit under test?
In series with the circuit
In quadrature with the circuit
In phase with the circuit
In parallel with the circuit

B-005-13-02 (2)
How is an ammeter usually connected to a circuit under test?
In quadrature with the circuit
In series with the circuit
In phase with the circuit
In parallel with the circuit

B-005-13-03 (2)
What does a multimeter measure?
Resistance, capacitance and inductance
Voltage, current and resistance
Resistance and reactance
SWR and power

B-005-13-04 (3)
The correct instrument to measure plate current or collector current of a transmitter is:
an ohmmeter
a wattmeter
an ammeter
a voltmeter

B-005-13-05 (1)
Which of the following meters would you use to measure the power supply current drawn by a small hand-held transistorized receiver?
a DC ammeter
an RF ammeter
an RF power meter
an electrostatic voltmeter

B-005-13-06 (2)
When measuring current drawn from a DC power supply, it is true to say that the meter will act in circuit as:
a perfect conductor
a low value resistance
an extra current drain
an insulator

B-005-13-07 (2)
When measuring the current drawn by a receiver from a power supply, the current meter should be placed:
in series with both receiver power leads
in series with one of the receiver power leads
in parallel with both receiver power supply leads
in parallel with one of the receiver power leads

B-005-13-08 (3)
Potential difference is measured by means of:
a wattmeter
an ohmmeter
a voltmeter
an ammeter

B-005-13-09 (3)
Voltage drop means:
the voltage which is dissipated before useful work is accomplished
difference in voltage at output terminals of a transformer
voltage between the terminals of a component
any point in a radio circuit which has zero voltage

B-005-13-10 (3)
The instrument used for measuring the flow of electrical current is the:
faradmeter
wattmeter
ammeter
voltmeter

B-005-13-11 (2)
In measuring volts and amperes, the connections should be made with:
the voltmeter in series and ammeter in parallel
the voltmeter in parallel and ammeter in series
both voltmeter and ammeter in series
both voltmeter and ammeter in parallel

B-006-01-01 (3)
What connects your transceiver to your antenna?
The power cord
A ground wire
A feed line
A dummy load

B-006-01-02 (2)
The characteristic impedance of a transmission line is determined by the:
length of the line
physical dimensions and relative positions of the conductors
frequency at which the line is operated
load placed on the line

B-006-01-03 (1)
The characteristic impedance of a 20 metre piece of transmission line is 52 ohms. If 10 metres were cut off, the impedance would be:
52 ohms
26 ohms
39 ohms
13 ohms

B-006-01-04 (1)
The impedance of a coaxial line:
can be the same for different diameter line
changes with the frequency of the energy it carries
is correct for only one size of line
is greater for larger diameter line

B-006-01-05 (4)
What commonly available antenna feed line can be buried directly in the ground for some distance without adverse effects?
300 ohm twin-lead
600 ohm open-wire
75 ohm twin-lead
coaxial cable

B-006-01-06 (4)
The characteristic impedance of a transmission line is:
the impedance of a section of the line one wavelength long
the dynamic impedance of the line at the operating frequency
the ratio of the power supplied to the line to the power delivered to the termination
equal to the pure resistance which, if connected to the end of the line, will absorb all the power arriving along it

B-006-01-07 (3)
A transmission line differs from an ordinary circuit or network in communications or signaling devices in one very important way. That important aspect is:
capacitive reactance
inductive reactance
propagation delay
resistance

B-006-01-08 (1)
The characteristic impedance of a parallel wire transmission line does not depend on the:
velocity of energy on the line
radius of the conductors
centre to centre distance between conductors
dielectric

B-006-01-09 (1)
Any length of transmission line may be made to appear as an infinitely long line by:
terminating the line in its characteristic impedance
leaving the line open at the end
shorting the line at the end
increasing the standing wave ratio above unity

B-006-01-10 (1)
What factors determine the characteristic impedance of a parallel-conductor antenna feed line?
The distance between the centres of the conductors and the radius of the conductors
The distance between the centres of the conductors and the length of the line
The radius of the conductors and the frequency of the signal
The frequency of the signal and the length of the line

B-006-01-11 (1)
What factors determine the characteristic impedance of a coaxial antenna feed line?
The ratio of the diameter of the inner conductor to the diameter of the braid
The diameter of the braid and the length of the line
The diameter of the braid and the frequency of the signal
The frequency of the signal and the length of the line

B-006-02-01 (4)
What is a coaxial cable?
Two wires side-by-side in a plastic ribbon
Two wires side-by-side held apart by insulating rods
Two wires twisted around each other in a spiral
A center wire inside an insulating material which is covered by a metal sleeve or shield

B-006-02-02 (4)
What is parallel-conductor feed line?
Two wires twisted around each other in a spiral
A center wire inside an insulating material which is covered by a metal sleeve or shield
A metal pipe which is as wide or slightly wider than a wavelength of the signal it carries
Two wires side-by-side held apart by insulating rods

B-006-02-03 (1)
What kind of antenna feed line is made of two conductors held apart by insulated rods?
Open-conductor ladder line
Coaxial cable
Twin lead in a plastic ribbon
Twisted pair

B-006-02-04 (2)
What does the term "balun" mean?
Balanced unloader
Balanced to unbalanced
Balanced unmodulator
Balanced antenna network

B-006-02-05 (1)
Where would you install a balun to feed a dipole antenna with 50-ohm coaxial cable?
Between the coaxial cable and the antenna
Between the transmitter and the coaxial cable
Between the antenna and the ground
Between the coaxial cable and the ground

B-006-02-06 (4)
What is an unbalanced line?
Feed line with neither conductor connected to ground
Feed line with both conductors connected to ground
Feed line with both conductors connected to each other
Feed line with one conductor connected to ground

B-006-02-07 (2)
What device can be installed to feed a balanced antenna with an unbalanced feed line?
A triaxial transformer
A balun
A wavetrap
A loading coil

B-006-02-08 (3)
A flexible coaxial line contains:
four or more conductors running parallel
only one conductor
braid and insulation around a central conductor
two parallel conductors separated by spacers

B-006-02-09 (1)
A balanced transmission line:
is made of two parallel wires
has one conductor inside the other
carries RF current on one wire only
is made of one conductor only

B-006-02-10 (2)
A 75 ohm transmission line could be matched to the 300 ohm feedpoint of an antenna:
with an extra 250 ohm resistor
by using a 4 to 1 balun
by using a 4 to 1 trigatron
by inserting a diode in one leg of the antenna

B-006-02-11 (3)
What kind of antenna feed line can be constructed using two conductors which are maintained a uniform distance apart using insulated spreaders?
Coaxial cable
75 ohm twin-lead
600 ohm open-wire
300 ohm twin-lead

B-006-03-01 (2)
Why does coaxial cable make a good antenna feed line?
It is weatherproof, and its impedance is higher than that of most amateur antennas
It is weatherproof, and its impedance matches most amateur antennas
It can be used near metal objects, and its impedance is higher than that of most amateur antennas
You can make it at home, and its impedance matches most amateur antennas

B-006-03-02 (3)
What is the best antenna feed line to use, if it must be put near grounded metal objects?
Ladder-line
Twisted pair
Coaxial cable
Twin lead

B-006-03-03 (3)
What are some reasons not to use parallel-conductor feed line?
You must use an impedance-matching device with your transceiver, and it does not work very well with a high SWR
It does not work well when tied down to metal objects, and it cannot operate under high power
It does not work well when tied down to metal objects, and you must use an impedance- matching device with your transceiver
It is difficult to make at home, and it does not work very well with a high SWR

B-006-03-04 (1)
What common connector usually joins RG-213 coaxial cable to an HF transceiver?
A PL-259 connector
An F-type cable connector
A banana plug connector
A binding post connector

B-006-03-05 (1)
What common connector usually joins a hand-held transceiver to its antenna?
A BNC connector
A PL-259 connector
An F-type cable connector
A binding post connector

B-006-03-06 (4)
Which of these common connectors has the lowest loss at UHF?
An F-type cable connector
A BNC connector
A PL-259 connector
A type-N connector

B-006-03-07 (3)
If you install a 6 metre Yagi antenna on a tower 50 metres from your transmitter, which of the following feed lines is best?
RG-174
RG-59
RG-213
RG-58

B-006-03-08 (1)
Why should you regularly clean, tighten and re-solder all antenna connectors?
To help keep their resistance at a minimum
To keep them looking nice
To keep them from getting stuck in place
To increase their capacitance

B-006-03-09 (3)
What commonly available antenna feed line can be buried directly in the ground for some distance without adverse effects?
75 ohm twin-lead
600 ohm open-wire
Coaxial cable
300 ohm twin-lead

B-006-03-10 (4)
When antenna feed lines must be placed near grounded metal objects, which of the following feed lines should be used?
300 ohm twin-lead
600 ohm open-wire
75 ohm twin-lead
Coaxial cable

B-006-03-11 (3)
TV twin-lead feed line can be used for a feed line in an amateur station. The impedance of this line is approximately:
600 ohms
50 ohms
300 ohms
70 ohms

B-006-04-01 (4)
Why should you use only good quality coaxial cable and connectors for a UHF antenna system?
To keep television interference high
To keep the power going to your antenna system from getting too high
To keep the standing wave ratio of your antenna system high
To keep RF loss low

B-006-04-02 (1)
What are some reasons to use parallel-conductor feed line?
It will operate with a high SWR, and has less loss than coaxial cable
It has low impedance, and will operate with a high SWR
It will operate with a high SWR, and it works well when tied down to metal objects
It has a low impedance, and has less loss than coaxial cable

B-006-04-03 (2)
If your transmitter and antenna are 15 metres apart, but are connected by 65 metres of RG-58 coaxial cable, what should be done to reduce feed line loss?
Shorten the excess cable so the feed line is an odd number of wavelengths long
Shorten the excess cable
Roll the excess cable into a coil which is as small as possible
Shorten the excess cable so the feed line is an even number of wavelengths long

B-006-04-04 (2)
As the length of a feed line is changed, what happens to signal loss?
Signal loss decreases as length increases
Signal loss increases as length increases
Signal loss is the least when the length is the same as the signal's wavelength
Signal loss is the same for any length of feed line

B-006-04-05 (2)
As the frequency of a signal is changed, what happens to signal loss in a feed line?
Signal loss increases with decreasing frequency
Signal loss increases with increasing frequency
Signal loss is the least when the signal's wavelength is the same as the feed line's length
Signal loss is the same for any frequency

B-006-04-06 (2)
Losses occurring on a transmission line between transmitter and antenna results in:
an SWR reading of 1:1
less RF power being radiated
reflections occurring in the line
the wire radiating RF energy

B-006-04-07 (1)
The lowest loss feed line on HF is:
open-wire
75 ohm twin-lead
coaxial cable
300 ohm twin-lead

B-006-04-08 (4)
In what values are RF feed line losses expressed?
ohms per MHz
dB per MHz
ohms per metre
dB per unit length

B-006-04-09 (1)
If the length of coaxial feed line is increased from 20 metres (65.6 ft) to 40 metres (131.2 ft), how would this affect the line loss?
It would be increased by 100%
It would be reduced by 10%
It would be increased by 10%
It would be reduced to 50%

B-006-04-10 (4)
If the frequency is increased, how would this affect the loss on a transmission line?
It is independent of frequency
It would increase
It depends on the line length
It would decrease

B-006-05-01 (1)
What does an SWR reading of 1:1 mean?
The best impedance match has been attained
An antenna for another frequency band is probably connected
No power is going to the antenna
The SWR meter is broken

B-006-05-02 (1)
What does an SWR reading of less than 1.5:1 mean?
A fairly good impedance match
An impedance match which is too low
An impedance mismatch; something may be wrong with the antenna system
An antenna gain of 1.5

B-006-05-03 (3)
What kind of SWR reading may mean poor electrical contact between parts of an antenna system?
A negative reading
No reading at all
A jumpy reading
A very low reading

B-006-05-04 (2)
What does a very high SWR reading mean?
The transmitter is putting out more power than normal, showing that it is about to go bad
The antenna is the wrong length, or there may be an open or shorted connection somewhere in the feed line
There is a large amount of solar radiation, which means very poor radio conditions
The signals coming from the antenna are unusually strong, which means very good radio conditions

B-006-05-05 (1)
What does standing-wave ratio mean?
The ratio of maximum to minimum voltages on a feed line
The ratio of maximum to minimum inductances on a feed line
The ratio of maximum to minimum resistances on a feed line
The ratio of maximum to minimum impedances on a feed line

B-006-05-06 (4)
If your antenna feed line gets hot when you are transmitting, what might this mean?
You should transmit using less power
The conductors in the feed line are not insulated very well
The feed line is too long
The SWR may be too high, or the feed line loss may be high

B-006-05-07 (4)
If the characteristic impedance of the feedline does not match the antenna input impedance then:
heat is produced at the junction
the SWR reading falls to 1:1
the antenna will not radiate any signal
standing waves are produced in the feedline

B-006-05-08 (4)
The result of the presence of standing waves on a transmission line is:
perfect impedance match between transmitter and feedline
maximum transfer of energy to the antenna from the transmitter
lack of radiation from the transmission line
reduced transfer of RF energy to the antenna

B-006-05-09 (1)
An SWR meter measures the degree of match between transmission line and antenna by:
comparing forward and reflected voltage
measuring radiated RF energy
measuring the conductor temperature
inserting a diode in the feed line

B-006-05-10 (3)
A resonant antenna having a feed point impedance of 200 ohms is connected to a feed line and transmitter which have an impedance of 50 ohms. What will the standing wave ratio of this system be?
6:1
3:1
4:1
5:1

B-006-05-11 (2)
The type of feed line best suited to operating at a high standing wave ratio is:
75 ohm twin-lead
600 ohm open-wire
coaxial line
300 ohm twin-lead

B-006-06-01 (1)
What device might allow use of an antenna on a band it was not designed for?
An antenna tuner
An SWR meter
A low pass filter
A high pass filter

B-006-06-02 (1)
What does an antenna matching unit do?
It matches a transceiver to a mismatched antenna system
It helps a receiver automatically tune in stations that are far away
It switches an antenna system to a transmitter when sending, and to a receiver when listening
It switches a transceiver between different kinds of antennas connected to one feed line

B-006-06-03 (2)
What would you use to connect a coaxial cable of 50 ohms impedance to an antenna of 35 ohms impedance?
An SWR meter
An impedance-matching device
A low pass filter
A terminating resistor

B-006-06-04 (3)
When will a power source deliver maximum output to the load?
When air wound transformers are used instead of iron-core transformers
When the power-supply fuse rating equals the primary winding current
When the impedance of the load is equal to the impedance of the source
When the load resistance is infinite

B-006-06-05 (2)
What happens when the impedance of an electrical load is equal to the internal impedance of the power source?
The electrical load is shorted
The source delivers maximum power to the load
No current can flow through the circuit
The source delivers minimum power to the load

B-006-06-06 (4)
Why is impedance matching important?
So the load will draw minimum power from the source
To ensure that there is less resistance than reactance in the circuit
To ensure that the resistance and reactance in the circuit are equal
So the source can deliver maximum power to the load

B-006-06-07 (3)
To obtain efficient power transmission from a transmitter to an antenna requires:
high load impedance
low ohmic resistance
matching of impedances
inductive impedance

B-006-06-08 (2)
To obtain efficient transfer of power from a transmitter to an antenna, it is important that there is a:
high load impedance
matching of impedance
proper method of balance
low ohmic resistance

B-006-06-09 (4)
If an antenna is correctly matched to a transmitter, the length of transmission line:
must be a full wavelength long
must be an odd number of quarter-wave
must be an even number of half-waves
will have no effect on the matching

B-006-06-10 (2)
The reason that an RF transmission line should be matched at the transmitter end is to:
ensure that the radiated signal has the intended polarization
transfer the maximum amount of power to the antenna
prevent frequency drift
overcome fading of the transmitted signal

B-006-06-11 (4)
If the centre impedance of a folded dipole is approximately 300 ohms, and you are using RG8U (50 ohms) coaxial lines, what is the ratio required to have the line and the antenna matched?
2:1
4:1
10:1
6:1

B-006-07-01 (3)
What does horizontal wave polarization mean?
The electric and magnetic lines of force of a radio wave are perpendicular to the earth's surface
The electric lines of force of a radio wave are perpendicular to the earth's surface
The electric lines of force of a radio wave are parallel to the earth's surface
The magnetic lines of force of a radio wave are parallel to the earth's surface

B-006-07-02 (2)
What does vertical wave polarization mean?
The magnetic lines of force of a radio wave are perpendicular to the earth's surface
The electric lines of force of a radio wave are perpendicular to the earth's surface
The electric and magnetic lines of force of a radio wave are parallel to the earth's surface
The electric lines of force of a radio wave are parallel to the earth's surface

B-006-07-03 (2)
What electromagnetic wave polarization does a Yagi antenna have when its elements are parallel to the earth's surface?
Helical
Horizontal
Vertical
Circular

B-006-07-04 (4)
What electromagnetic wave polarization does a half-wavelength antenna have when it is perpendicular to the earth's surface?
Circular
Horizontal
Parabolical
Vertical

B-006-07-05 (2)
Polarization of an antenna is determined by:
the height of the antenna
the electric field
the type of antenna
the magnetic field

B-006-07-06 (1)
An isotropic antenna is a:
hypothetical point source
infinitely long piece of wire
dummy load
half-wave reference dipole

B-006-07-07 (4)
What is the antenna radiation pattern for an isotropic radiator?
A parabola
A cardioid
A unidirectional cardioid
A sphere

B-006-07-08 (3)
VHF signals from a mobile station using a vertical whip antenna will normally be best received using a:
random length of wire
horizontal ground-plane antenna
vertical ground-plane antenna
horizontal dipole antenna

B-006-07-09 (4)
A dipole antenna will emit a vertically polarized wave if it is:
fed with the correct type of RF
too near to the ground
parallel with the ground
mounted vertically

B-006-07-10 (2)
If an electromagnetic wave leaves an antenna vertically polarized, it will arrive at the receiving antenna, by ground wave:
polarized at right angles to original
vertically polarized
horizontally polarized
polarized in any plane

B-006-07-11 (4)
Compared with a horizontal antenna, a vertical antenna will receive a vertically polarized radio wave:
at weaker strength
without any comparative difference
if the antenna changes the polarization
at greater strength

B-006-08-01 (1)
If an antenna is made longer, what happens to its resonant frequency?
It decreases
It increases
It stays the same
It disappears

B-006-08-02 (2)
If an antenna is made shorter, what happens to its resonant frequency?
It stays the same
It increases
It disappears
It decreases

B-006-08-03 (3)
The wavelength for a frequency of 25 MHz is:
15 metres (49.2 ft)
4 metres (13.1 ft)
12 metres (39.4 ft)
32 metres (105 ft)

B-006-08-04 (1)
The velocity of propagation of radio frequency energy in free space is:
300 000 kilometres per second
3000 kilometres per second
150 kilometres per second
186 000 kilometres per second

B-006-08-05 (3)
Adding a series inductance to an antenna would:
increase the resonant frequency
have little effect
decrease the resonant frequency
have no change on the resonant frequency

B-006-08-06 (3)
The resonant frequency of an antenna may be increased by:
lowering the radiating element
increasing the height of the radiating element
shortening the radiating element
lengthening the radiating element

B-006-08-07 (2)
The speed of a radio wave:
is infinite in space
is the same as the speed of light
is always less than half speed of light
varies directly with frequency

B-006-08-08 (1)
At the end of suspended antenna wire, insulators are used. These act to:
limit the electrical length of the antenna
increase the effective antenna length
allow the antenna to be more easily held vertically
prevent any loss of radio waves by the antenna

B-006-08-09 (2)
To lower the resonant frequency of an antenna, the operator should:
shorten it
lengthen it
ground one end
centre feed it with TV ribbon feeder

B-006-08-10 (2)
One solution to multiband operation with a shortened radiator is the "trap dipole" or trap vertical. These "traps" are actually:
large wire-wound resistors
a coil and capacitor in parallel
coils wrapped around a ferrite rod
hollow metal cans

B-006-08-11 (2)
The wavelength corresponding to a frequency of 2 MHz is:
360 m (1181 ft)
150 m (492 ft)
1500 m (4921 ft)
30 m (98 ft)

B-006-09-01 (3)
What is a parasitic beam antenna?
An antenna where the driven element obtains its radio energy by induction or radiation from director elements
An antenna where all elements are driven by direct connection to the feed line
An antenna where some elements obtain their radio energy by induction or radiation from a driven element
An antenna where wave traps are used to magnetically couple the elements

B-006-09-02 (2)
How can the bandwidth of a parasitic beam antenna be increased?
Use traps on the elements
Use larger diameter elements
Use tapered-diameter elements
Use closer element spacing

B-006-09-03 (2)
If a slightly shorter parasitic element is placed 0.1 wavelength away from an HF dipole antenna, what effect will this have on the antenna's radiation pattern?
A major lobe will develop in the horizontal plane, parallel to the two elements
A major lobe will develop in the horizontal plane, toward the parasitic element
A major lobe will develop in the vertical plane, away from the ground
The radiation pattern will not be affected

B-006-09-04 (3)
If a slightly longer parasitic element is placed 0.1 wavelength away from an HF dipole antenna, what effect will this have on the antenna's radiation pattern?
A major lobe will develop in the horizontal plane, parallel to the two elements
A major lobe will develop in the vertical plane, away from the ground
A major lobe will develop in the horizontal plane, away from the parasitic element, toward the dipole
The radiation pattern will not be affected

B-006-09-05 (1)
The property of an antenna, which defines the range of frequencies to which it will respond, is called its:
bandwidth
front-to-back ratio
impedance
polarization

B-006-09-06 (4)
Approximately how much gain does a half-wave dipole have over an isotropic radiator?
1.5 dB
3.0 dB
6.0 dB
2.1 dB

B-006-09-07 (4)
What is meant by antenna gain?
The numerical ratio of the signal in the forward direction to the signal in the back direction
The numerical ratio of the amount of power radiated by an antenna compared to the transmitter output power
The final amplifier gain minus the transmission line losses
The numerical ratio relating the radiated signal strength of an antenna to that of another antenna

B-006-09-08 (4)
What is meant by antenna bandwidth?
Antenna length divided by the number of elements
The angle between the half- power radiation points
The angle formed between two imaginary lines drawn through the ends of the elements
The frequency range over which the antenna may be expected to perform well

B-006-09-09 (1)
In free space, what is the radiation characteristic of a half-wave dipole?
Minimum radiation from the ends, maximum broadside
Maximum radiation from the ends, minimum broadside
Omnidirectional
Maximum radiation at 45 degrees to the plane of the antenna

B-006-09-10 (1)
The gain of an antenna, especially on VHF and above, is quoted in dBi. The "i" in this expression stands for:
isotropic
ideal
ionosphere
interpolated

B-006-09-11 (2)
The front-to-back ratio of a beam antenna is:
the forward power of the major lobe to the power in the backward direction both being measured at the 3 dB points
the ratio of the maximum forward power in the major lobe to the maximum backward power radiation
undefined
the ratio of the forward power at the 3 dB points to the power radiated in the backward direction

B-006-10-01 (3)
How do you calculate the length in metres (feet) of a quarter-wavelength vertical antenna?
Divide 468 (1532) by the antenna's operating frequency (in MHz)
Divide 300 (982) by the antenna's operating frequency (in MHz)
Divide 71.5 (234) by the antenna's operating frequency (in MHz)
Divide 150 (491) by the antenna's operating frequency (in MHz)

B-006-10-02 (2)
If you made a quarter-wavelength vertical antenna for 21.125 MHz, how long would it be?
3.6 metres (11.8 ft)
3.36 metres (11.0 ft)
7.2 metres (23.6 ft)
6.76 metres (22.2 ft)

B-006-10-03 (1)
If you made a half-wavelength vertical antenna for 223 MHz, how long would it be?
64 cm (25.2 in)
128 cm (50.4 in)
105 cm (41.3 in)
134.6 cm (53 in)

B-006-10-04 (2)
Why is a 5/8-wavelength vertical antenna better than a 1/4-wavelength vertical antenna for VHF or UHF mobile operations?
A 5/8-wavelength antenna has less corona loss
A 5/8-wavelength antenna has more gain
A 5/8-wavelength antenna is easier to install on a car
A 5/8-wavelength antenna can handle more power

B-006-10-05 (3)
If a magnetic-base whip antenna is placed on the roof of a car, in what direction does it send out radio energy?
Most of it is aimed high into the sky
Most of it goes equally in two opposite directions
It goes out equally well in all horizontal directions
Most of it goes in one direction

B-006-10-06 (3)
What is an advantage of downward sloping radials on a ground plane antenna?
It increases the radiation angle
It brings the feed point impedance closer to 300 ohms
It brings the feed point impedance closer to 50 ohms
It lowers the radiation angle

B-006-10-07 (1)
What happens to the feed point impedance of a ground-plane antenna when its radials are changed from horizontal to downward-sloping?
It increases
It decreases
It stays the same
It approaches zero

B-006-10-08 (4)
Which of the following transmission lines will give the best match to the base of a quarter-wave ground-plane antenna?
300 ohms balanced feed line
75 ohms balanced feed line
300 ohms coaxial cable
50 ohms coaxial cable

B-006-10-09 (1)
The main characteristic of a vertical antenna is that it will:
receive signals equally well from all compass points around it
be very sensitive to signals coming from horizontal antennas
require few insulators
be easy to feed with TV ribbon feeder

B-006-10-10 (1)
Why is a loading coil often used with an HF mobile vertical antenna?
To tune out capacitive reactance
To lower the losses
To lower the Q
To improve reception

B-006-10-11 (2)
What is the main reason why so many VHF base and mobile antennas are 5/8 of a wavelength?
The angle of radiation is high giving excellent local coverage
The angle of radiation is low
It is easy to match the antenna to the transmitter
It's a convenient length on VHF

B-006-11-01 (4)
How many directly driven elements do most Yagi antennas have?
None
Two
Three
One

B-006-11-02 (4)
Approximately how long is the driven element of a Yagi antenna for 14.0 MHz?
5.21 metres (17 feet)
10.67 metres (35 feet)
20.12 metres (66 feet)
10.21 metres (33 feet and 6 inches)

B-006-11-03 (2)
Approximately how long is the director element of a Yagi antenna for 21.1 MHz?
5.18 metres (17 feet)
6.4 metres (21 feet)
3.2 metres (10.5 feet)
12.8 metres (42 feet)

B-006-11-04 (2)
Approximately how long is the reflector element of a Yagi antenna for 28.1 MHz?
4.88 metres (16 feet)
5.33 metres (17.5 feet)
10.67 metres (35 feet)
2.66 metres (8.75 feet)

B-006-11-05 (4)
What is one effect of increasing the boom length and adding directors to a Yagi antenna?
SWR increases
Weight decreases
Wind load decreases
Gain increases

B-006-11-06 (1)
What are some advantages of a Yagi with wide element spacing?
High gain, less critical tuning and wider bandwidth
High gain, lower loss and a low SWR
High front-to-back ratio and lower input resistance
Shorter boom length, lower weight and wind resistance

B-006-11-07 (4)
Why is a Yagi antenna often used for radiocommunications on the 20-metre band?
It provides excellent omnidirectional coverage in the horizontal plane
It is smaller, less expensive and easier to erect than a dipole or vertical antenna
It provides the highest possible angle of radiation for the HF bands
It helps reduce interference from other stations off to the side or behind

B-006-11-08 (2)
What does "antenna front-to- back ratio" mean in reference to a Yagi antenna?
The relative position of the driven element with respect to the reflectors and directors
The power radiated in the major radiation lobe compared to the power radiated in exactly the opposite direction
The power radiated in the major radiation lobe compared to the power radiated 90 degrees away from that direction
The number of directors versus the number of reflectors

B-006-11-09 (1)
What is a good way to get maximum performance from a Yagi antenna?
Optimize the lengths and spacing of the elements
Use RG-58 feed line
Use a reactance bridge to measure the antenna performance from each direction around the antenna
Avoid using towers higher than 9 metres (30 feet) above the ground

B-006-11-10 (4)
The spacing between the elements on a three-element Yagi antenna, representing the best overall choice, is _____ of a wavelength.
0.15
0.5
0.75
0.2

B-006-11-11 (2)
If the forward gain of a six- element Yagi is about 10 dB, what would the gain of two of these antennas be if they were "stacked"?
7 dB
13 dB
20 dB
10 dB

B-006-12-01 (4)
If you made a half-wavelength dipole antenna for 28.550 MHz, how long would it be?
10.5 metres (34.37 ft)
28.55 metres (93.45 ft)
5.08 metres (16.62 ft)
10.16 metres (33.26 ft)

B-006-12-02 (3)
What is one disadvantage of a random wire antenna?
It usually produces vertically polarized radiation
It must be longer than 1 wavelength
You may experience RF feedback in your station
You must use an inverted T matching network for multi-band operation

B-006-12-03 (1)
What is the low angle radiation pattern of an ideal half-wavelength dipole HF antenna installed parallel to the earth?
It is a figure-eight, perpendicular to the antenna
It is a circle (equal radiation in all directions)
It is two smaller lobes on one side of the antenna, and one larger lobe on the other side
It is a figure-eight, off both ends of the antenna

B-006-12-04 (2)
The impedances in ohms at the feed point of the dipole and folded dipole are, respectively:
73 and 150
73 and 300
52 and 100
52 and 200

B-006-12-05 (4)
A dipole transmitting antenna, placed so that the ends are pointing North/South, radiates:
mostly to the South and North
mostly to the South
equally in all directions
mostly to the East and West

B-006-12-06 (4)
How does the bandwidth of a folded dipole antenna compare with that of a simple dipole antenna?
It is essentially the same
It is less than 50%
It is 0.707 times the bandwidth
It is greater

B-006-12-07 (2)
What is a disadvantage of using an antenna equipped with traps?
It is too sharply directional at lower frequencies
It will radiate harmonics
It must be neutralized
It can only be used for one band

B-006-12-08 (1)
What is an advantage of using a trap antenna?
It may be used for multi- band operation
It has high directivity at the higher frequencies
It has high gain
It minimizes harmonic radiation

B-006-12-09 (1)
The "doublet antenna" is the most common in the amateur service. If you were to cut this antenna for 3.75 MHz, what would be its approximate length?
38 meters (125 ft.)
32 meters (105 ft.)
45 meters (145 ft.)
75 meters (245 ft.)

B-006-13-01 (3)
What is a cubical quad antenna?
A center-fed wire 1/2-electrical wavelength long
A vertical conductor 1/4- electrical wavelength high, fed at the bottom
Two or more parallel four- sided wire loops, each approximately one-electrical wavelength long
Four straight, parallel elements in line with each other, each approximately 1/2-electrical wavelength long

B-006-13-02 (1)
What is a delta loop antenna?
A type of cubical quad antenna, except with triangular elements rather than square
A large copper ring or wire loop, used in direction finding
An antenna system made of three vertical antennas, arranged in a triangular shape
An antenna made from several triangular coils of wire on an insulating form

B-006-13-03 (1)
Approximately how long is each side of a cubical quad antenna driven element for 21.4 MHz?
3.54 metres (11.7 feet)
0.36 metres (1.17 feet)
14.33 metres (47 feet)
143 metres (469 feet)

B-006-13-04 (2)
Approximately how long is each side of a cubical quad antenna driven element for 14.3 MHz?
21.43 metres (70.3 feet)
5.36 metres (17.6 feet)
53.34 metres (175 feet)
7.13 metres (23.4 feet)

B-006-13-05 (4)
Approximately how long is each leg of a symmetrical delta loop antenna driven element for 28.7 MHz?
2.67 metres (8.75 feet)
7.13 metres (23.4 feet)
10.67 metres (35 feet)
3.5 metres (11.5 feet)

B-006-13-06 (2)
Which statement about two- element delta loops and quad antennas is true?
They perform very well only at HF
They compare favorably with a three-element Yagi
They are effective only when constructed using insulated wire
They perform poorly above HF

B-006-13-07 (1)
Compared to a dipole antenna, what are the directional radiation characteristics of a cubical quad antenna?
The quad has more directivity in both horizontal and vertical planes
The quad has more directivity in the horizontal plane but less directivity in the vertical plane
The quad has less directivity in the horizontal plane but more directivity in the vertical plane
The quad has less directivity in both horizontal and vertical planes

B-006-13-08 (3)
Moving the feed point of a multi-element quad antenna from a side parallel to the ground to a side perpendicular to the ground will have what effect?
It will change the antenna polarization from vertical to horizontal
It will significantly decrease the antenna feed point impedance
It will change the antenna polarization from horizontal to vertical
It will significantly increase the antenna feed point impedance

B-006-13-09 (2)
What does the term "antenna front-to-back ratio" mean in reference to a delta loop antenna?
The relative position of the driven element with respect to the reflectors and directors
The power radiated in the major radiation lobe compared to the power radiated in exactly the opposite direction
The power radiated in the major radiation lobe compared to the power radiated 90 degrees away from that direction
The number of directors versus the number of reflectors

B-006-13-10 (2)
The cubical "quad" or "quad" antenna consists of two or more square loops of wire. The driven element has an approximate overall length of:
three-quarters of a wavelength
one wavelength
two wavelengths
one-half wavelength

B-006-13-11 (2)
The delta loop antenna consists of two or more triangular structures mounted on a boom. The overall length of the driven element is approximately:
one-quarter of a wavelength
one wavelength
two wavelengths
one-half of a wavelength

B-007-01-01 (4)
What type of propagation usually occurs from one hand- held VHF transceiver to another nearby?
Tunnel propagation
Sky-wave propagation
Auroral propagation
Line-of-sight propagation

B-007-01-02 (4)
How does the range of sky-wave propagation compare to ground- wave propagation?
It is much shorter
It is about the same
It depends on the weather
It is much longer

B-007-01-03 (3)
When a signal is returned to earth by the ionosphere, what is this called?
Tropospheric propagation
Ground-wave propagation
Sky-wave propagation
Earth-moon-earth propagation

B-007-01-04 (1)
How are VHF signals propagated within the range of the visible horizon?
By direct wave
By sky wave
By plane wave
By geometric wave

B-007-01-05 (1)
Skywave is another name for:
ionospheric wave
tropospheric wave
ground wave
inverted wave

B-007-01-06 (4)
That portion of the radiation which is directly affected by the surface of the earth is called:
tropospheric wave
ionospheric wave
inverted wave
ground wave

B-007-01-07 (4)
At HF frequencies, line-of-sight transmission between two stations uses mainly the:
troposphere
skip wave
ionosphere
ground wave

B-007-01-08 (3)
The distance travelled by ground waves:
depends on the maximum usable frequency
is more at higher frequencies
is less at higher frequencies
is the same for all frequencies

B-007-01-09 (3)
The radio wave which follows a path from the transmitter to the ionosphere and back to earth is known correctly as the:
F layer
surface wave
ionospheric wave
skip wave

B-007-01-10 (2)
Reception of high frequency (HF) radio waves beyond 4000 km is generally possible by:
ground wave
ionospheric wave
skip wave
surface wave

B-007-02-01 (2)
What causes the ionosphere to form?
Lightning ionizing the outer atmosphere
Solar radiation ionizing the outer atmosphere
Release of fluorocarbons into the atmosphere
Temperature changes ionizing the outer atmosphere

B-007-02-02 (3)
What type of solar radiation is most responsible for ionization in the outer atmosphere?
Microwave
Ionized particle
Ultraviolet
Thermal

B-007-02-03 (2)
Which ionospheric region is closest to the earth?
The E region
The D region
The F region
The A region

B-007-02-04 (3)
Which region of the ionosphere is the least useful for long distance radio-wave propagation?
The F2 region
The F1 region
The D region
The E region

B-007-02-05 (4)
What two sub-regions of ionosphere exist only in the daytime?
Troposphere and stratosphere
Electrostatic and electromagnetic
D and E
F1 and F2

B-007-02-06 (3)
When is the ionosphere most ionized?
Dawn
Midnight
Midday
Dusk

B-007-02-07 (1)
When is the ionosphere least ionized?
Shortly before dawn
Just after noon
Just after dusk
Shortly before midnight

B-007-02-08 (4)
Why is the F2 region mainly responsible for the longest distance radio-wave propagation?
Because it exists only at night
Because it is the lowest ionospheric region
Because it does not absorb radio waves as much as other ionospheric regions
Because it is the highest ionospheric region

B-007-02-09 (2)
What is the main reason the 160, 80 and 40 metre amateur bands tend to be useful only for short-distance communications during daylight hours?
Because of auroral propagation
Because of D-region absorption
Because of magnetic flux
Because of a lack of activity

B-007-02-10 (4)
During the day, one of the ionospheric layers splits into two parts called:
D1 & D2
E1 & E2
A & B
F1 & F2

B-007-02-11 (2)
The position of the E layer in the ionosphere is:
below the D layer
below the F layer
sporadic
above the F layer

B-007-03-01 (3)
What is a skip zone?
An area which is too far away for ground-wave or sky-wave propagation
An area covered by sky-wave propagation
An area which is too far away for ground-wave propagation, but too close for sky-wave propagation
An area covered by ground- wave propagation

B-007-03-02 (3)
What is the maximum distance along the earth's surface that is normally covered in one hop using the F2 region?
None; the F2 region does not support radio-wave propagation
2160 km (1200 miles)
4500km (2500 miles)
325 km (180 miles)

B-007-03-03 (1)
What is the maximum distance along the earth's surface that is normally covered in one hop using the E region?
2160 km (1200 miles)
325 km (180 miles)
4500 km (2500 miles)
None; the E region does not support radio-wave propagation

B-007-03-04 (3)
Skip zone is:
a zone of silence caused by lost sky waves
a zone between any two refracted waves
a zone between the end of the ground wave and the point where the first refracted wave returns to earth
a zone between the antenna and the return of the first refracted wave

B-007-03-05 (3)
The distance to Europe from your location is approximately 5000 km. What sort of propagation is the most likely to be involved?
sporadic "E"
back scatter
multihop
tropospheric scatter

B-007-03-06 (4)
For radio signals, the skip distance is determined by the:
power fed to the final
angle of radiation
type of transmitting antenna used
height of the ionosphere and the angle of radiation

B-007-03-07 (3)
The distance from the transmitter to the nearest point where the sky wave returns to the earth is called the:
skip zone
angle of radiation
skip distance
maximum usable frequency

B-007-03-08 (1)
Skip distance is the:
the minimum distance reached by a signal after one reflection by the ionosphere
the maximum distance reached by a signal after one reflection by the ionosphere
the minimum distance reached by a ground-wave signal
the maximum distance a signal will travel by both a ground wave and reflected wave

B-007-03-09 (1)
Skip distance is a term associated with signals from the ionosphere. Skip effects are due to:
reflection and refraction from the ionosphere
selective fading of local signals
high gain antennas being used
local cloud cover

B-007-03-10 (3)
The skip distance of a sky wave will be greatest when the:
polarization is vertical
ionosphere is most densely ionized
angle between ground and radiation is smallest
signal given out is strongest

B-007-03-11 (3)
If the height of the reflecting layer of the ionosphere increases, the skip distance of a high frequency (HF) transmission:
stays the same
varies regularly
becomes greater
decreases

B-007-04-01 (1)
What effect does the D region of the ionosphere have on lower frequency HF signals in the daytime?
It absorbs the signals
It bends the radio waves out into space
It refracts the radio waves back to earth
It has little or no effect on 80-metre radio waves

B-007-04-02 (2)
What causes the ionosphere to absorb radio waves?
The presence of ionized clouds in the E region
The ionization of the D region
The splitting of the F region
The weather below the ionosphere

B-007-04-03 (1)
Two or more parts of the radio wave follow different paths during propagation and this may result in phase differences at the receiver. This "change" at the receiver is called:
fading
baffling
absorption
skip

B-007-04-04 (4)
A change or variation in signal strength at the antenna, caused by differences in path lengths, is called:
absorption
fluctuation
path loss
fading

B-007-04-05 (3)
When a transmitted radio signal reaches a station by a one-hop and two-hop skip path, small changes in the ionosphere can cause:
consistent fading of received signal
consistently stronger signals
variations in signal strength
a change in the ground-wave signal

B-007-04-06 (2)
The usual effect of ionospheric storms is to:
produce extreme weather changes
cause a fade-out of sky- wave signals
prevent communications by ground wave
increase the maximum usable frequency

B-007-04-07 (1)
On the VHF and UHF bands, polarization of the receiving antenna is very important in relation to the transmitting antenna, yet on HF bands it is relatively unimportant. Why is that so?
The ionosphere can change the polarization of the signal from moment to moment
The ground wave and the sky wave continually shift the polarization
Anomalies in the earth's magnetic field produce a profound effect on HF polarization
Greater selectivity is possible with HF receivers making changes in polarization redundant

B-007-04-08 (1)
What causes selective fading?
Phase differences between radio wave components of the same transmission, as experienced at the receiving station
Small changes in beam heading at the receiving station
Time differences between the receiving and transmitting stations
Large changes in the height of the ionosphere at the receiving station ordinarily occurring shortly before sunrise and sunset

B-007-04-09 (2)
How does the bandwidth of a transmitted signal affect selective fading?
It is the same for both wide and narrow bandwidths
It is more pronounced at wide bandwidths
Only the receiver bandwidth determines the selective fading effect
It is more pronounced at narrow bandwidths

B-007-04-10 (1)
Polarization change often takes place on radio waves that are propagated over long distances. Which of these does not cause polarization change?
Parabolic interaction
Reflections
Passage through magnetic fields (Faraday rotation)
Refractions

B-007-04-11 (1)
Reflection of a SSB transmission from the ionosphere causes:
little or no phase-shift distortion
phase-shift distortion
signal cancellation at the receiver
a high-pitch squeal at the receiver

B-007-05-01 (1)
How do sunspots change the ionization of the atmosphere?
The more sunspots there are, the greater the ionization
The more sunspots there are, the less the ionization
Unless there are sunspots, the ionization is zero
They have no effect

B-007-05-02 (3)
How long is an average sunspot cycle?
17 years
5 years
11 years
7 years

B-007-05-03 (3)
What is solar flux?
A measure of the tilt of the earth's ionosphere on the side toward the sun
The number of sunspots on the side of the sun facing the earth
The radio energy emitted by the sun
The density of the sun's magnetic field

B-007-05-04 (3)
What is the solar-flux index?
Another name for the American sunspot number
A measure of solar activity that compares daily readings with results from the last six months
A measure of solar activity that is taken at a specific frequency
A measure of solar activity that is taken annually

B-007-05-05 (3)
What influences all radiocommunication beyond ground-wave or line-of-sight ranges?
The F2 region of the ionosphere
The F1 region of the ionosphere
Solar activity
Lunar tidal effects

B-007-05-06 (4)
Which two types of radiation from the sun influence propagation?
Subaudible and audio-frequency emissions
Polar region and equatorial emissions
Infra-red and gamma-ray emissions
Electromagnetic and particle emissions

B-007-05-07 (1)
When sunspot numbers are high, how is the ionosphere affected?
Frequencies up to 40 MHz or higher are normally usable for long-distance communication
High frequency radio signals are absorbed
Frequencies up to 100 MHz or higher are normally usable for long-distance communication
High frequency radio signals become weak and distorted

B-007-05-08 (4)
All communication frequencies throughout the spectrum are affected in varying degrees by the:
ionosphere
aurora borealis
atmospheric conditions
sun

B-007-05-09 (1)
Average duration of a solar cycle is:
11 years
3 years
6 years
1 year

B-007-05-10 (1)
The ability of the ionosphere to reflect high frequency radio signals depends on:
the amount of solar radiation
the power of the transmitted signal
the receiver sensitivity
upper atmosphere weather conditions

B-007-05-11 (1)
Propagation cycles have a period of approximately 11:
years
months
days
centuries

B-007-06-01 (1)
What happens to signals higher in frequency than the critical frequency?
They pass through the ionosphere
They are absorbed by the ionosphere
Their frequency is changed by the ionosphere to be below the maximum usable frequency
They are reflected back to their source

B-007-06-02 (1)
What causes the maximum usable frequency to vary?
The amount of radiation received from the sun, mainly ultraviolet
The temperature of the ionosphere
The speed of the winds in the upper atmosphere
The type of weather just below the ionosphere

B-007-06-03 (4)
What does maximum usable frequency mean?
The lowest frequency signal that will reach its intended destination
The highest frequency signal that is most absorbed by the ionosphere
The lowest frequency signal that is most absorbed by the ionosphere
The highest frequency signal that will reach its intended destination

B-007-06-04 (1)
What can be done at an amateur station to continue HF communications during a sudden ionospheric disturbance?
Try a higher frequency
Try the other sideband
Try a different antenna polarization
Try a different frequency shift

B-007-06-05 (1)
What is one way to determine if the maximum usable frequency (MUF) is high enough to support 28 MHz propagation between your station and western Europe?
Listen for signals on the 10-metre beacon frequency
Listen for signals on the 20-metre beacon frequency
Listen for signals on the 39-metre broadcast frequency
Listen for WWVH time signals on 20 MHz

B-007-06-06 (3)
What usually happens to radio waves with frequencies below the maximum usable frequency (MUF) when they are sent into the ionosphere?
They are changed to a frequency above the MUF
They are completely absorbed by the ionosphere
They are bent back to the earth
They pass through the ionosphere

B-007-06-07 (3)
At what point in the solar cycle does the 20-metre band usually support worldwide propagation during daylight hours?
Only at the minimum point of the solar cycle
Only at the maximum point of the solar cycle
At any point in the solar cycle
At the summer solstice

B-007-06-08 (2)
If we transmit a signal, the frequency of which is so high we no longer receive a reflection from the ionosphere, the signal frequency is above the:
skip distance
maximum usable frequency
speed of light
sunspot frequency

B-007-06-09 (1)
Communication on the 80 metre band is generally most difficult during:
daytime in summer
evening in winter
evening in summer
daytime in winter

B-007-06-10 (3)
The optimum working frequency provides the best long range HF communication. Compared with the maximum usable frequency (MUF), it is usually:
double the MUF
half the MUF
slightly lower
slightly higher

B-007-06-11 (1)
During summer daytime, which bands are the most difficult for communications beyond ground wave?
160 and 80 metres
40 metres
30 metres
20 metres

B-007-07-01 (3)
Which ionospheric region most affects sky-wave propagation on the 6 metre band?
The F2 region
The F1 region
The E region
The D region

B-007-07-02 (4)
What effect does tropospheric bending have on 2-metre radio waves?
It causes them to travel shorter distances
It garbles the signal
It reverses the sideband of the signal
It lets you contact stations farther away

B-007-07-03 (3)
What causes tropospheric ducting of radio waves?
Lightning between the transmitting and receiving stations
An aurora to the north
A temperature inversion
A very low pressure area

B-007-07-04 (3)
That portion of the radiation kept close to the earth's surface due to bending in the atmosphere is called the:
inverted wave
ground wave
tropospheric wave
ionospheric wave

B-007-07-05 (1)
What is a sporadic-E condition?
Patches of dense ionization at E-region height
Partial tropospheric ducting at E-region height
Variations in E-region height caused by sunspot variations
A brief decrease in VHF signals caused by sunspot variations

B-007-07-06 (3)
On which amateur frequency band is the extended-distance propagation effect of sporadic-E most often observed?
160 metres
20 metres
6 metres
2 metres

B-007-07-07 (2)
In the northern hemisphere, in which direction should a directional antenna be pointed to take maximum advantage of auroral propagation?
East
North
West
South

B-007-07-08 (2)
Where in the ionosphere does auroral activity occur?
At F-region height
At E-region height
In the equatorial band
At D-region height

B-007-07-09 (3)
Which emission modes are best for auroral propagation?
RTTY and AM
FM and CW
CW and SSB
SSB and FM

B-007-07-10 (2)
Excluding enhanced propagation modes, what is the approximate range of normal VHF tropospheric propagation?
2400 km (1500 miles)
800 km (500 miles)
3200 km (2000 miles)
1600 km (1000 miles)

B-007-07-11 (2)
What effect is responsible for propagating a VHF signal over 800 km (500 miles)?
Faraday rotation
Tropospheric ducting
D-region absorption
Moon bounce

B-007-08-01 (4)
What kind of propagation would best be used by two stations within each other's skip zone on a certain frequency?
Scatter-mode
Sky-wave
Ducting
Ground-wave

B-007-08-02 (3)
If you receive a weak, distorted signal from a distance, and close to the maximum usable frequency, what type of propagation is probably occurring?
Ground-wave
Line-of-sight
Scatter
Ducting

B-007-08-03 (2)
What is a characteristic of HF scatter signals?
Reversed modulation
A wavering sound
Reversed sidebands
High intelligibility

B-007-08-04 (1)
What makes HF scatter signals often sound distorted?
Energy scattered into the skip zone through several radio-wave paths
Auroral activity and changes in the earth's magnetic field
Propagation through ground waves that absorb much of the signal
The state of the E-region at the point of refraction

B-007-08-05 (2)
Why are HF scatter signals usually weak?
Propagation through ground waves absorbs most of the signal energy
Only a small part of the signal energy is scattered into the skip zone
The F region of the ionosphere absorbs most of the signal energy
Auroral activity absorbs most of the signal energy

B-007-08-06 (3)
What type of radio-wave propagation allows a signal to be detected at a distance too far for ground-wave propagation but too near for normal sky-wave propagation?
Short-path skip
Sporadic-E skip
Scatter
Ground wave

B-007-08-07 (4)
When does scatter propagation on the HF bands most often occur?
When the sunspot cycle is at a minimum and D-region absorption is high
At night
When the F1 and F2 regions are combined
When communicating on frequencies above the maximum usable frequency (MUF)

B-007-08-08 (4)
Which of the following IS NOT a scatter mode?
Meteor scatter
Tropospheric scatter
Ionospheric scatter
Absorption scatter

B-007-08-09 (2)
Meteor scatter is most effective on what band?
40 metres
6 metres
15 metres
160 metres

B-007-08-10 (3)
Which of the following IS NOT a scatter mode?
Side scatter
Back scatter
Inverted scatter
Forward scatter

B-007-08-11 (1)
In which frequency range is meteor scatter most effective for extended-range communication?
30 - 100 MHz
10 - 30 MHz
3 - 10 MHz
100 - 300 MHz

B-008-01-01 (3)
What is meant by receiver overload?
Interference caused by turning the volume up too high
Too much current from the power supply
Interference caused by strong signals from a nearby transmitter
Too much voltage from the power supply

B-008-01-02 (3)
What is one way to tell if radio frequency interference to a receiver is caused by front-end overload?
If grounding the receiver makes the problem worse
If connecting a low pass filter to the receiver greatly cuts down the interference
If the interference is about the same no matter what frequency is used for the transmitter
If connecting a low pass filter to the transmitter greatly cuts down the interference

B-008-01-03 (3)
If a neighbour reports television interference whenever you transmit, no matter what band you use, what is probably the cause of the interference?
Incorrect antenna length
Receiver VR tube discharge
Receiver overload
Too little transmitter harmonic suppression

B-008-01-04 (1)
What type of filter should be connected to a TV receiver as the first step in trying to prevent RF overload from an amateur HF station transmission?
High-pass
Low-pass
Band-pass
No filter

B-008-01-05 (2)
When the signal from a transmitter overloads the audio stages of a broadcast receiver, the transmitted signal:
is distorted on voice peaks
can appear wherever the receiver is tuned
appears only on one frequency
appears only when a station is tuned

B-008-01-06 (2)
Cross-modulation of a broadcast receiver by a nearby transmitter would be noticed in the receiver as:
interference only when a broadcast signal is tuned
the undesired signal in the background of the desired signal
distortion on transmitted voice peaks
interference continuously across the dial

B-008-01-07 (4)
What is cross-modulation interference?
Interference between two transmitters of different modulation type
Interference caused by audio rectification in the receiver reamplifier
Harmonic distortion of the transmitted signal
Modulation from an unwanted signal is heard in addition to the desired signal

B-008-01-08 (2)
What is the term used to refer to the condition where the signals from a very strong station are superimposed on other signals being received?
Receiver quieting
Cross-modulation interference
Capture effect
Intermodulation distortion

B-008-01-09 (4)
What is the result of cross-modulation?
Receiver quieting
A decrease in modulation level of transmitted signals
Inverted sidebands in the final stage of the amplifier
The modulation of an unwanted signal is heard on the desired signal

B-008-01-10 (3)
If a television receiver suffers from cross-modulation when a nearby amateur transmitter is operating at 14 MHz, which of the following cures might be effective?
A low pass filter attached to the antenna output of the transmitter
A high pass filter attached to the antenna output of the transmitter
A high pass filter attached to the antenna input of the television
A low pass filter attached to the antenna input of the television

B-008-01-11 (1)
How can cross-modulation be reduced?
By installing a suitable filter at the receiver
By using a better antenna
By increasing the receiver RF gain while decreasing the AF gain
By adjusting the passband tuning

B-008-02-01 (3)
What devices would you install to reduce or eliminate audio-frequency interference to home entertainment systems?
Bypass resistors
Metal-oxide varistors
Bypass capacitors
Bypass inductors

B-008-02-02 (3)
What should be done if a properly operating amateur station is the cause of interference to a nearby telephone?
Ground and shield the local telephone distribution amplifier
Stop transmitting whenever the telephone is in use
Ask the telephone company to install RFI filters
Make internal adjustments to the telephone equipment

B-008-02-03 (3)
What sound is heard from a public-address system if audio rectification of a nearby single-sideband phone transmission occurs?
Clearly audible speech from the transmitter's signals
On-and-off humming or clicking
Distorted speech from the transmitter's signals
A steady hum whenever the transmitter's carrier is on the air

B-008-02-04 (4)
What sound is heard from a public-address system if audio rectification of a nearby CW transmission occurs?
Audible, possibly distorted speech
Muffled, severely distorted speech
A steady whistling
On-and-off humming or clicking

B-008-02-05 (3)
How can you minimize the possibility of audio rectification of your transmitter's signals?
By installing bypass capacitors on all power supply rectifiers
By using CW emission only
By ensuring that all station equipment is properly grounded
By using a solid-state transmitter

B-008-02-06 (2)
An amateur transmitter is being heard across the entire dial of a broadcast receiver. The receiver is most probably suffering from:
harmonics interference from the transmitter
cross-modulation or audio rectification in the receiver
poor image rejection
splatter from the transmitter

B-008-02-07 (1)
Cross-modulation is usually caused by:
rectification of strong signals
harmonics generated at the transmitter
improper filtering in the transmitter
lack of receiver sensitivity and selectivity

B-008-02-08 (4)
What device can be used to minimize the effect of RF pickup by audio wires connected to stereo speakers, intercom amplifiers, telephones, etc.?
Magnet
Attenuator
Diode
Ferrite core

B-008-02-09 (1)
Stereo speaker leads often act as antennas to pick up RF signals. What is one method you can use to minimize this effect?
Shorten the leads
Lengthen the leads
Connect the speaker through an audio attenuator
Connect a diode across the speaker

B-008-02-10 (3)
One method of preventing RF from entering a stereo set through the speaker leads is to wrap each of the speaker leads around a:
copper bar
iron bar
ferrite core
wooden dowel

B-008-02-11 (4)
Stereo amplifiers often have long leads which pick up transmitted signals because they act as:
transmitting antennas
RF attenuators
frequency discriminators
receiving antennas

B-008-03-01 (2)
How can you prevent key-clicks?
By increasing power
By using a key-click filter
By using a better power supply
By sending CW more slowly

B-008-03-02 (1)
If someone tells you that signals from your hand-held transceiver are interfering with other signals on a frequency near yours, what may be the cause?
Your hand-held may be transmitting spurious emissions
You may need a power amplifier for your hand-held
Your hand-held may have chirp from weak batteries
You may need to turn the volume up on your hand-held

B-008-03-03 (3)
If your transmitter sends signals outside the band where it is transmitting, what is this called?
Side tones
Transmitter chirping
Spurious emissions
Off-frequency emissions

B-008-03-04 (2)
What problem may occur if your transmitter is operated without the cover and other shielding in place?
It may transmit a weak signal
It may transmit spurious emissions
It may interfere with other stations operating near its frequency
It may transmit a chirpy signal

B-008-03-05 (1)
In Morse code transmission, local RF interference (key-clicks) is produced by:
the making and breaking of the circuit at the Morse key
frequency shifting caused by poor voltage regulation
the power amplifier, and is caused by high frequency parasitics
poor waveshaping caused by a poor voltage regulator

B-008-03-06 (2)
Key-clicks, heard from a Morse code transmitter at a distant receiver, are the result of:
power supply hum modulating the carrier
too sharp rise and decay times of the carrier
sparks emitting RF from the key contacts
changes in oscillator frequency on keying

B-008-03-07 (4)
In a Morse code transmission, local RF interference (key-clicks) is produced by:
shift in frequency when keying the transmitter
sparking at the key contacts
sudden movement in the receiver loudspeaker
poor shaping of the waveform

B-008-03-08 (1)
Key-clicks can be suppressed by:
inserting a choke and a capacitor at the key
turning the receiver down
regulating the oscillator supply voltage
using a choke in the RF power output

B-008-03-09 (4)
A parasitic oscillation:
is generated by parasitic elements of a Yagi beam
does not cause any radio interference
is produced in a transmitter oscillator stage
is an unwanted signal developed in a transmitter

B-008-03-10 (1)
Parasitic oscillations in the RF power amplifier stage of a transmitter may be found:
at high or low frequencies
on harmonic frequencies
at high frequencies only
at low frequencies only

B-008-03-11 (3)
Transmitter RF amplifiers can generate parasitic oscillations:
on VHF frequencies only
on the transmitter fundamental frequency
on either side of the transmitter frequency
on harmonics of the transmitter frequency

B-008-04-01 (2)
If a neighbour reports television interference on one or two channels only when you transmit on 15 metres, what is probably the cause of the interference?
De ionization of the ionosphere near your neighbour's TV antenna
Harmonic radiation from your transmitter
TV receiver front-end overload
Too much low pass filtering on the transmitter

B-008-04-02 (1)
What is meant by harmonic radiation?
Unwanted signals at frequencies which are multiples of the fundamental (chosen) frequency
Unwanted signals that are combined with a 60-Hz hum
Unwanted signals caused by sympathetic vibrations from a nearby transmitter
Signals which cause skip propagation to occur

B-008-04-03 (4)
Why is harmonic radiation from an amateur station not wanted?
It uses large amounts of electric power
It may cause sympathetic vibrations in nearby transmitters
It may cause auroras in the air
It may cause interference to other stations and may result in out-of-band signals

B-008-04-04 (2)
What type of interference may come from a multi-band antenna connected to a poorly tuned transmitter?
Parasitic excitation
Harmonic radiation
Intermodulation
Auroral distortion

B-008-04-05 (3)
If you are told your station was heard on 21 375 kHz, but at the time you were operating on 7125 kHz, what is one reason this could happen?
Your transmitter's power-supply filter choke was bad
You were sending CW too fast
Your transmitter was radiating harmonic signals
Your transmitter's power-supply filter capacitor was bad

B-008-04-06 (4)
What causes splatter interference?
Keying a transmitter too fast
Signals from a transmitter's output circuit are being sent back to its input circuit
The transmitting antenna is the wrong length
Overmodulation of a transmitter

B-008-04-07 (3)
Your amateur radio transmitter appears to be creating interference to the television on channel 3 (60-66 MHz) when you are transmitting on the 15 metre band. Other channels are not affected. The most likely cause is:
no high-pass filter on the TV
a bad ground at the transmitter
harmonic radiation from the transmitter
front-end overload of the TV

B-008-04-08 (3)
One possible cause of TV interference by harmonics from an SSB transmitter is from "flat topping" - driving the final amplifier into non- linear operation. The most appropriate remedy for this is:
retune transmitter output
use another antenna
reduce microphone gain
reduce oscillator output

B-008-04-09 (4)
In a transmitter, excessive harmonics are produced by:
low SWR
resonant circuits
a linear amplifier
overdriven stages

B-008-04-10 (3)
An interfering signal from a transmitter is found to have a frequency of 57 MHz (TV Channel 2 is 54 - 60 MHz). This signal could be the:
crystal oscillator operating on its fundamental
seventh harmonic of an 80 metre transmission
second harmonic of a 10 metre transmission
third harmonic of a 15 metre transmission

B-008-04-11 (1)
Harmonics may be produced in the RF power amplifier of a transmitter if:
excessive drive signal is applied to it
the output tank circuit is not correctly tuned
the oscillator frequency is unstable
modulation is applied to more than one stage

B-008-05-01 (1)
What type of filter might be connected to an amateur HF transmitter to cut down on harmonic radiation?
A low pass filter
A key-click filter
A high pass filter
A CW filter

B-008-05-02 (3)
Why do modern HF transmitters have a built-in low pass filter in their RF output circuits?
To reduce fundamental radiation
To reduce low frequency interference to other amateurs
To reduce harmonic radiation
To reduce RF energy below a cut-off point

B-008-05-03 (4)
What circuit blocks RF energy above and below a certain limit?
A high pass filter
An input filter
A low pass filter
A band pass filter

B-008-05-04 (3)
What should be the impedance of a low pass filter as compared to the impedance of the transmission line into which it is inserted?
Substantially lower
Twice the transmission line impedance
About the same
Substantially higher

B-008-05-05 (4)
In order to reduce the harmonic output of a high frequency (HF) transmitter, which of the following filters should be installed at the transmitter?
Band pass
High pass
Rejection
Low pass

B-008-05-06 (2)
To reduce harmonic output from a transmitter, you would put a _____ in the transmission line as close to the transmitter as possible.
high pass filter
low pass filter
band reject filter
wave trap

B-008-05-07 (4)
To reduce energy from an HF transmitter getting into a television set, you would place a _____ as close to the TV as possible.
low pass filter
wave trap
band reject filter
high pass filter

B-008-05-08 (3)
A band pass filter will:
attenuate high frequencies but not low pass frequencies each side of a band
allow only certain frequencies through
stop frequencies in a certain band

B-008-05-09 (2)
A band reject filter will:
allow only two frequencies through
pass frequencies each side of a band
pass frequencies below 100 MHz
stop frequencies each side of a band

B-008-05-10 (3)
A high pass filter would normally be fitted:
between microphone and speech amplifier
at the Morse key or keying relay in a transmitter
at the antenna terminals of the TV receiver
between transmitter output and feed line

B-008-05-11 (3)
A low pass filter suitable for a high frequency transmitter would:
pass audio frequencies above 3 kHz
attenuate frequencies below 30 MHz
attenuate frequencies above 30 MHz
pass audio frequencies below 3 kHz