বাংলাদেশ টেলিযোগাযোগ নিয়ন্ত্রণ কমিশন
প্লট#ই-৫/এ, আগারগাঁও প্রশাসনিক এলাকা, শের-ই-বাংলা নগর, ঢাকা-১২০৭
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তারিখ: ১১ বৈশাখ ১৪৩২ বঙ্গাব্দ
২৪ এপ্রিল ২০২৫ খ্রিস্টাব্দ

বিজ্ঞপ্তি/নোটিশ

বিষয়: **অ্যামেচার রেডিও লাইসেন্স প্রাপ্তি পরীক্ষার প্রশ্ন ব্যাংক/Question Bank সংক্রান্ত বিজ্ঞপ্তি ।**

এতদ্দ্বারা সংশ্লিষ্ট সকলের অবগতির জন্য জানানো যাচ্ছে যে, বিটিআরসি হতে গত ১৮-০৩-২০২৫ তারিখে অ্যামেচার রেডিও লাইসেন্স প্রাপ্তি পরীক্ষা - ২০২৫ এর বিজ্ঞপ্তি প্রকাশ করা হয়েছে। উক্ত বিজ্ঞপ্তি অনুসারে পরীক্ষার প্রশ্ন ব্যাংক/Question Bank বিটিআরসি'র অফিসিয়াল ওয়েবসাইটে (www.btrc.gov.bd) প্রকাশ করা হয়েছে। উল্লেখ্য যে, উক্ত প্রশ্ন ব্যাংকের বিষয় বস্তুর আলোকে জ্ঞান যাচাইয়ের লক্ষ্যে বহুনির্বাচনী প্রশ্ন, সত্য-মিথ্যা এবং সংক্ষিপ্ত প্রশ্নের মাধ্যমে বর্ণিত পরীক্ষা গ্রহণ করা হবে। এমতাবস্থায়, বর্ণিত পরীক্ষায় আবেদনকারীগণকে প্রকাশিত প্রশ্ন ব্যাংকের আলোকে প্রস্তুতি গ্রহণের জন্য বিশেষ ভাবে অনুরোধ করা হইল।

সকল সংযুক্তিসমূহ:
(১) পরীক্ষার প্রশ্ন ব্যাংক/Question Bank

সংযুক্তি: পরীক্ষার প্রশ্ন ব্যাংক/Question Bank

২৪-০৪-২০২৫
সাজেদা পারভীন
পরিচালক

আবেদনকারী (সকল), অ্যামেচার রেডিও লাইসেন্স প্রাপ্তি পরীক্ষা - ২০২৫।

বিতরণ: জ্ঞাতার্থে/জ্ঞাতার্থে ও কার্যার্থে (জ্যেষ্ঠতার ক্রমানুসারে নয়):
১। উপ পরিচালক, প্রশাসন বিভাগ, বাংলাদেশ টেলিযোগাযোগ নিয়ন্ত্রণ কমিশন (কমিশনের ওয়েব সাইটে প্রকাশের অনুরোধসহ)।
২। চেয়ারম্যান এর একান্ত সচিব, চেয়ারম্যান এর দপ্তর, বাংলাদেশ টেলিযোগাযোগ নিয়ন্ত্রণ কমিশন (ইহা চেয়ারম্যান মহোদয়ের সদয় অবগতির জন্য)।
৩। ব্যক্তিগত কর্মকর্তা, স্পেকট্রাম বিভাগ, বাংলাদেশ টেলিযোগাযোগ নিয়ন্ত্রণ কমিশন (ইহা কমিশনার মহোদয়ের সদয় অবগতির জন্য)।

Question Bank For Amateur Radio Licensing Examination, 2025

(for reference and guidance only)

1. What is the standard repeater shifting in VHF band?

a) 5 MHz
b) 600 KHz
c) 1 MHz
d) 900 KHz

Answer: b;

2. What is the standard repeater shifting in UHF band?

a) 600 KHz
b) 1 MHz
c) 5 MHz
d) 900 KHz

Answer: c;

3. What is the main difference between HF and VHF band?

a) HF band means (3 - 30) MHz and VHF band means (30 - 300) MHz
b) HF band means (30 - 300) MHz and VHF band means (3 - 30) MHz
c) HF band means (300 - 3000) MHz and VHF band means (3 - 30) MHz
d) HF band means (3 - 30) MHz and VHF band means (300 - 3000) MHz

Answer: c;

4. Which of the following frequencies is in the General Class portion of the 40 meter band?

a) 7.150 MHz
b) 7.500 MHz
c) 40.200 MHz
d) 40.500 MHz

Answer: a;

5. Which of the following frequencies is in the 12 meter band?

a) 3.940 MHz
b) 12.940 MHz
c) 17.940 MHz
d) 24.940 MHz

Answer: a;

6. Which of the following frequencies is within the General class portion of the 75 meter phone band?

a) 1875 kHz
b) 3750 kHz
c) 3900 kHz
d) 4005 kHz

Answer: c;

7. Which of the following frequencies is within the General Class portion of the 20 meter phone band?

a) 14005 kHz
b) 14105 kHz
c) 14305 kHz
d) 14405 kHz

Answer: c;

8. Which of the following frequencies is within the General Class portion of the 80 meter band?

a) 1855 kHz
b) 2560 kHz
c) 3560 kHz
d) 3650 kHz

Answer: c;

9. Which of the following frequencies is within the General Class portion of the 15 meter band?

a) 14250 kHz
b) 18155 kHz
c) 21300 kHz
d) 24900 kHz

Answer: c;

10. Which of the following frequencies is available to a control operator holding a General Class license?

a) 28.020 MHz
b) 28.350 MHz
c) 28.550 MHz
d) All of these answers are correct

Answer: d;

11. When a General Class licensee is not permitted to use the entire voice portion of a particular band, which portion of the voice segment is generally available to them?

a) The lower end
b) The upper end
c) The lower end on frequencies below 7.3 MHz and the upper end on frequencies above14.150 MHz
d) The upper end on frequencies below 7.3 MHz and the lower end on frequencies above14.150 MHz

Answer: b;

12. Which amateur band is shared with the Citizens Radio Service?

a) 10 meters
b) 11 meters
c) 12 meters
d) None

Answer: d;

13. What must you do if, when operating on either the 30 or 60 meter bands, a station in the primary service interferes with your contact?

a) Notify the BTRC's spectrum management department of the interference
b) 'Increase your transmitter's power to overcome the interference
c) Attempt to contact the station and request that it stop the interference
d) Stop transmitting at once and/or move to a clear frequency

Answer: d;

14. Which of the following operating restrictions applies to amateur radio stations as asecondary service in the 60 meter band?

a) They must not cause harmful interference to stations operating in other radio services
b) They must transmit no more than 30 minutes during each hour to minimize harmful interference to other radio services
c) They must use lower sideband, suppressed-carrier, only
d) They must not exceed 2.0 kHz of bandwidth

Answer: a;

15. With which of the following conditions must beacon stations comply?

a) Identification must be in Morse Code
b) The frequency must be coordinated with the National Beacon Organization
c) The frequency must be posted on the Internet or published in a national periodical
d) There must be no more than one beacon signal in the same band from a single location

Answer: d;

16. Which of the following is a purpose of a beacon station as identified in the Amateur Rules?

a) Observation of propagation and reception, or other related activities
b) Automatic Identification of Repeaters
c) Transmission of bulletins of General interest to amateur radio licensees
d) Identifying Net Frequencies

Answer: a;

17. When may music be transmitted by an amateur station?

a) At any time, as long as it produces no spurious emissions
b) When it is unintentionally transmitted from the background at the transmitter
c) When it is transmitted on frequencies above 1215 MHz
d) When it is an incidental part of a space shuttle or ISS retransmission

Answer: d;

18. When is an amateur station permitted to transmit secret codes?

a) During a declared communications emergency
b) To control a space station
c) Only when the information is of a routine, personal nature
d) Only with Special Temporary Authorization from the BTRC

Answer: b;

19. Which of the following is prohibited by the BTRC Rules for amateur radio stations?

a) Transmission of music as the primary program material during a contact
b) The use of obscene or indecent words
c) Transmission of false or deceptive messages or signals
d) All of these answers are correct

Answer: d;

20. What is the power limit for beacon stations in Intermediate class license?

a) 10 watts PEP output
b) 20 watts PEP output
c) 100 watts PEP output
d) 200 watts PEP output

Answer: c;

21. How does the BTRC require an amateur station to be operated in all respects not covered by the rules?

a) In conformance with the rules of the IARU
b) In conformance with amateur radio custom
c) In conformance with good engineering and good amateur practice
d) All of these answers are correct

Answer: c;

22. What is the maximum transmitting power an amateur station may use on 10.140 MHz for Intermediate class?

a) 100 watts PEP output
b) 1000 watts PEP output
c) 1500 watts PEP output
d) 2000 watts PEP output

Answer: a;

23. What is the maximum transmitting power an amateur station may use on the 12 meter band for General class?

a) 1500 PEP output, except for 200 watts PEP output in the novice portion
b) b. 200 watts PEP output
c) 1000 watts PEP output

d) Effective radiated power equivalent to 50 watts from a half wave dipole

Answer: c;

24. What is the maximum transmitting power a General class licensee may use when operating between 7025 and 7125 kHz?

a) 200 watts PEP output
b) 1500 watts PEP output
c) 1000 watts PEP output
d) 2000 watts PEP output

Answer: c;

25. What limitations, other than the 1500 watt PEP limit, are placed on transmitter power in the 14 MHz band?

a) Only the minimum power necessary to carry out the desired communications should be used
b) Power must be limited to 200 watts when transmitting between 14.100 MHz and 14.150 MHz
c) Power should be limited as necessary to avoid interference to another radio service on the frequency
d) Effective radiated power cannot exceed 3000 watts

Answer: a;

26. What is the maximum transmitting power a station with a General Class control operator mayuse on the 28 MHz band?

a) 100 watts PEP output
b) 1000 watts PEP output
c) 1500 watts PEP output
d) 2000 watts PEP output

Answer: b;

27. What is the maximum transmitting power an amateur station may use on 1825 kHz for General class?

a) 200 watts PEP output
b) 1000 watts PEP output
c) 1200 watts PEP output
d) 1500 watts PEP output

Answer: b;

28. Which of the following is not correct practice for an Intermediate class license holder?

a) Transmissions must only use Lower Sideband (LSB)
b) Transmissions must use only CW or Data modes
c) Transmissions can exceed the power limitations permitted for them
d) Transmissions must not exceed according to needs of the operator

Answer: c;

29. What is the maximum symbol rate permitted for RTTY emissions transmitted on frequency bands below 28 MHz?

a) 56 kilobaud
b) 19.6 kilobaud
c) 1200 baud
d) 300 baud

Answer: d;

30. What is the maximum symbol rate permitted for packet emission transmissions on the 2 meter band?

a) 300 baud
b) 1200 baud
c) 19.6 kilobaud
d) 56 kilobaud

Answer: c;

31. What is the maximum symbol rate permitted for RTTY or data emission transmissions on the 10 meter band?

a) 56 kilobaud
b) 19.6 kilobaud
c) 1200 baud
d) 300 baud

Answer: c;

32. What is the maximum symbol rate permitted for RTTY or data emission transmissions on the 6 and 2 meter bands?

a) 56 kilobaud
b) 19.6 kilobaud
c) 1200 baud
d) 300 baud

Answer: b;

33. What is the standard bandwidth for narrow band FM transmission in VHF and UHF

a) 20 kHz
b) 50 kHz
c) 12.5 KHz
d) 25 KHz

Answer: c;

34. What is the maximum bandwidth permitted by BTRC rules for amateur radio stations when operating on USB frequencies in the 60--meter band?

a) 2.8 kHz
b) 5.6 kHz

c) +/-2.8 kHz
d) 3 kHz

Answer: a;

35. Which of the following would disqualify a third party from participating in stating amessage over an amateur station?

a) The third party is a person previously licensed in the amateur service whose license had been revoked
b) The third party is not a Bangladeshi citizen
c) The third party is a licensed amateur
d) The third party is speaking in a language other than English, French, or Spanish

Answer: a;

36. When may a 10 meter repeater retransmit the 2 meter signal from a station having a Intermediate Class control operator?

a) Under no circumstances
b) Only if the station on 10 meters is operating under a Special Temporary Authorization allowing such retransmission
c) Only during an BTRC-declared General state of communications emergency
d) Only if the 10 meter control operator holds at least a General class license

Answer: d;

37. What kind of amateur station simultaneously retransmits the signals of other stations on another channel?
a) Repeater Station
b) Beacon Station
c) Telecommmand Station
d) Relay Station

Answer: a;

38. Which of the following conditions require an amateur radio station to take specific steps to avoid harmful interference to other users

a) When operating within one mile of an BTRC Monitoring Station
b) When using a band where the amateur service is secondary
c) When a station is transmitting spread spectrum emissions
d) All of these answers are correct

Answer: d;

39. Which of the following applies in the event of interference between a coordinated repeater and an uncoordinated repeater?

a) The licensee of the non-coordinated repeater has primary responsibility to resolve the interference
b) The licensee of the coordinated repeater has primary responsibility to resolve the interference
c) Both repeater licensees share equal responsibility to resolve the interference
d) The frequency coordinator bears primary responsibility to resolve the interference

Answer: a;

40. With which of the following is third-party traffic prohibited, except for messages directly involving emergencies or disaster relief communications?

a) Countries in ITU Region 2
b) Countries in ITU Region 1
c) Any country other than the United States, unless there is a third-party agreement in effect with that country
d) Any country which is not a member of the Internal Amateur Radio Union (IARU)

Answer: c;

41. What language must you use when identifying your station if you are using a language other than English in making a contact?

a) The language being used for the contact
b) Any language if the US has a third party agreement with that country
c) English
d) Any language of a country that is a member of the ITU

Answer: c;

42. Which of the following is a permissible third party communication during routine amateurradio operations?

a) Permitting an unlicensed person to speak to a licensed amateur anywhere in the world
b) Sending a business message for another person, as long it is for a non-profit organization
c) Sending a business message for another person, as long as the control operator has no pecuniary interest in the message
d) Sending a message to a third party through a foreign station, as long as that person is a licensed amateur radio operator

Answer: d;

43. Which sideband is most commonly used for phone communications on the bands above 20 meters?

a) Upper Sideband
b) Lower Sideband
c) Vestigial Sideband
d) Double Sideband

Answer: a;

44. Which sideband is commonly used on the 160, 75, and 40 meter bands?

a) Upper Sideband
b) Lower Sideband
c) Vestigial Sideband
d) Double Sideband

Answer: b;

45. Which sideband is commonly used in the VHF and UHF bands?

a) Upper Sideband
b) Lower Sideband
c) Vestigial Sideband
d) Double Sideband

Answer: a;

46. Which mode is most commonly used for voice communications on the 17 and 12 meter bands?

a) a. Upper Sideband**
b) Lower Sideband
c) Vestigial Sideband
d) Double Sideband

Answer: a;

47. Which mode of voice communication is most commonly used on the High Frequency Amateur bands?

a) FM
b) AM
c) SSB
d) PM

Answer: c;

48. Which of the following is an advantage when using single sideband as compared to other voice modes on the HF amateur bands?

a) Very high fidelity voice modulation
b) Less bandwidth used and high power efficiency
c) Ease of tuning on receive
d) Less subject to static crashes (atmospherics)

Answer: b;

49. Which of the following statements is true of single sideband (SSB) voice mode?

a) It is a form of amplitude modulation in which one sideband and the carrier are suppressed
b) It is a form of frequency modulation in which higher frequencies are emphasized
c) It reproduces upper frequencies more efficiently than lower frequencies
d) It is the only voice mode authorized on the HF bands between 14 and 30 MHz 50.

Answer: b;

50. Why do most amateur stations use lower sideband on the 160, 75 and 40 meter bands?

e) The lower sideband is more efficient at these frequency bands
f) The lower sideband is the only sideband legal on these frequency bands
g) Because it is fully compatible with an AM detector
h) Current amateur practice is to use lower sideband on these frequency bands

Answer: d;

51. 51. Which of the following statements is true of VOX operation?

a) The received signal is more natural sounding
b) VOX allows "hands free" operation
c) Frequency spectrum is conserved
d) The duty cycle of the transmitter is reduced

Answer: b;

52. Which of the following user adjustable controls are usually associated with VOX circuitry?

a) a. Anti-VOX
b) VOX Delay
c) VOX Sensitivity
d) All of these choices are correct

Answer: d;

53. What is the recommended way to break into a conversation when using phone?

a) Say "QRZ" several times followed by your call sign
b) Say your call sign during a break between transmissions from the other stations
c) Say "Break" "Break" "Break" and wait for a response
d) Say "CQ" followed by the call sign of either station

Answer: b;

54. What does the expression "CQ DX" usually indicates?

a) A general call for any station
b) The caller is listening for a station in Germany
c) The caller is looking for any station outside their own country
d) This is a form of distress call

Answer: c;

55. What action should be taken if the frequency on which a net normally meets is in use just before the net begins?

a) Reduce your output power and start the net as usual
b) Increase your power output so that net participants will be able to hear you
c) Ask the stations if the net may use the frequency, or move the net to a nearby clear frequency if necessary
d) Cancel the net for that day

Answer: c;

56. What should be done if a net is about to begin on a frequency you and another station are using?

a) Move to a different frequency as a courtesy to the net
b) Tell the net that they must to move to another frequency
c) Reduce power to avoid interfering with the net
d) Pause between transmissions to give the net a chance to change frequency

Answer: a;

57. What should you do if you notice increasing interference from other activity on a frequencyyou are using?

a) Tell the interfering stations to change frequency since you were there first
b) Report the interference to your local Amateur Auxiliary Coordinator
c) Move your contact to another frequency
d) Turn on your amplifier

Answer: c;

58. What minimum frequency separation between CW signals should be allowed to minimize interference?

a) a. 5 to 50 Hz
b) 150 to 500 Hz
c) 1 to 3 kHz
d) 3 to 6 kHz

Answer: b;

59. What minimum frequency separation between SSB signals should be allowed to minimize interference?

a) a. Between 150 and 500 Hz
b) Approximately 3 kHz
c) Approximately 6 kHz
d) Approximately 10 kHz

Answer: b;

60. What minimum frequency separation between 170 Hz shift RTTY signals should be allowed to minimize interference?

a) a. 60 Hz
b) 250 to 500 Hz
c) Approximately 3 kHz
d) 170 Hz

Answer: b;

61. What is a band plan?

a) A voluntary guideline for band use beyond the divisions established by the BTRC
b) A guideline from the BTRC for making amateur frequency band allocations
c) A guideline from the ITU for making amateur frequency band allocations
d) A plan devised by a club to best use a frequency band during a contest

Answer: a;

62. What should you do to comply with good amateur practice when choosing a frequency for Slow-Scan TV (SSTV) operation?

a) Transmit only on lower sideband
b) Transmit your callsign as an SSTV image for 1 minute to ensure a clear frequency
c) Select a frequency in the portion of the band set aside for digital operation

d) Follow generally accepted band plans for SSTV operation

Answer: d;

63. What should you do to comply with good amateur practice when choosing a frequency for radio-teletype (RTTY) operation?

a) Call CQ in Morse code before attempting to establish a contact in RTTY
b) Select a frequency in the upper end of the phone band
c) Select a frequency in the lower end of the phone band
d) Follow generally accepted band plans for RTTY operation

Answer: d;

64. What should you do to comply with good amateur practice when choosing a frequency for HF PSK operation?

a) Call CQ in Morse code before attempting to establish a contact in PSK
b) Select a frequency in the upper end of the phone band
c) Select a frequency in the lower end of the phone band
d) Follow generally accepted band plans for PSK operation

Answer: d;

65. What is a practical way to avoid harmful interference when selecting a frequency to call CQ using phone?

a) Ask if the frequency is in use, say your callsign, and listen for a response*
b) Keep your CQ to less than 2 minutes in length to avoid interference to contacts that may be in progress
c) Listen for 2 minutes before calling CQ to avoid interference to contacts that maybe in progress
d) Call CQ at low power first and if there is no indication of interference, increase power as necessary

Answer: a;

66. What is a practical way to avoid harmful interference when calling CQ using Morse code or CW?

a) Send the letter "V" 12 times and then listen for a response
b) Keep your CQ to less than 2 minutes in length to avoid interference with contacts already in progress
c) Send "QRL? de" followed by your callsign and listen for a response
d) Call CQ at low power first; if there is no indication of interference then increase power as necessary

Answer: c;

67. When normal communications systems are not available, what means may an amateur station use to provide essential communications when there is an immediate threat to the safety of human life or the protection of property?

a) Only transmissions sent on internationally recognized emergency channels
b) Any means, but only on to RACES recognized emergency stations
c) Any means of radio communication at its disposal

d) Only those means of radio communication for which the station is licensed

Answer: c;

68. Who may be the control operator of an amateur station transmitting in assisting emergency relief operations during a disaster?

a) Only a person holding an BTRC issued amateur operator license
b) Only a RACES net control operator
c) Only official emergency stations may transmit during a disaster
d) Any control operator when normal communication systems are operational

Answer: a;

69. When may the BTRC restrict normal frequency operations of amateur stations?

a) When they declare a temporary state of communication emergency
b) When they seize your equipment for use in disaster communications
c) Only when all amateur stations are instructed to stop transmitting
d) When the country goes under a WAR

Answer: d;

70. When is an amateur station prevented from using any means at its disposal to assist another station in distress?

a) Only when transmitting in RACES
b) Only when authorized by the BTRC rule
c) Never
d) Only on authorized HF frequencies

Answer: c;

71. What type of transmission would a control operator be making when transmitting out of the amateur band without station identification during a life threatening emergency?

a) A prohibited transmission
b) An unidentified transmission
c) A third party communication
d) An auxiliary transmission

Answer: b;

72. Frequencies may be used by an amateur station to obtain assistance when in distress?

a) Only frequencies in the 80 meter band
b) Only frequencies in the 40 meter band
c) Any frequency authorized to the control operator
d) Any United Nations approved frequency

Answer: c;

73. What is the first thing you should do if you are communicating with another amateur station and hear a station in distress break in?

a) Continue your communication because you were on frequency first
b) Acknowledge the station in distress and determine what assistance may be needed
c) Change to a different frequency
d) Immediately cease all transmissions

Answer: b;

74. When are you prohibited from helping a station in distress?

a) When that station is not transmitting on amateur frequencies
b) When the station in distress offers no call sign
c) You are never prohibited from helping any station in distress
d) When the station is not another amateur station

Answer: c;

75. What type of transmissions may an amateur station make during a disaster?

a) Only transmissions when RACES net is activated
b) Transmissions necessary to meet essential communications needs and to facilitate relief actions
c) Only transmissions from an official emergency station
d) Only one-way communications

Answer: b;

76. Which emission mode must be used to obtain assistance during a disaster?

a) a. Only SSB
b) Only SSB and CW
c) Any mode
d) Only CW

Answer: c;

77. What information should be given to a station answering a distress transmission?

a) The ITU region and grid square locator of the emergency
b) The location and nature of the emergency**
c) The time that the emergency occurred and the local weather
d) The name of the local emergency coordinator

Answer: b;

78. What frequency should be used to send a distress call?

a) Whatever frequency has the best chance of communicating the distress message
b) 3873 kHz at night or 7285 kHz during the day
c) Only frequencies that are within your operating privileges
d) Only frequencies used by police, fire or emergency medical services

Answer: a;

79. What is the Amateur Auxiliary to the BTRC?

a) Amateur volunteers who are formally enlisted to monitor the airwaves for rules violations
b) Amateur volunteers who conduct amateur licensing examinations
c) Amateur volunteers who conduct frequency coordination for amateur VHF repeaters
d) Amateur volunteers who use their station equipment to help civil defense organizations in times of emergency

Answer: a;

80. What are the objectives of the Amateur Auxiliary?

a) To conduct efficient and orderly amateur licensing examinations
b) To encourage amateur self-regulation and compliance with the rules
c) To coordinate repeaters for efficient and orderly spectrum usage
d) To provide emergency and public safety communications

Answer: b;

81. What skills learned during Fox Hunts are of help to the Amateur Auxiliary?

a) Identification of out of band operation
b) Direction-finding skills used to locate stations violating BTRC Rules
c) Identification of different call signs
d) Hunters have an opportunity to transmit on non-amateur frequencies

Answer: b;

82. What is the most useful type of map to use when orienting a directional HF antenna toward a distant station? How is a directional

a) Azimuthal projection
b) Mercator projection
c) Polar projection
d) Stereographic projection

Answer: a;

83. Antenna pointed when making a long-path contact with another station?

a) Toward the rising sun
b) Along the Gray Line
c) 180 degrees from its short-path heading
d) Toward the North

Answer: c;

84. Which of the following information must a licensee retain as part of their station records?

a) The call sign of other amateurs operating your station
b) Antenna gain calculations or manufacturer's data for antennas used on 60 meters
c) A record of all contacts made with stations in foreign countries
d) A copy of all third party messages sent through your station

Answer: c;

85. Why do many amateurs keep a log even though the BTRC doesn't require it?

a) The ITU requires a log of all international contacts
b) The ITU requires a log of all international third party traffic
c) The log provides evidence of operation needed to renew a license without retest
d) To help with a reply if the BTRC requests information on who was control operator of your station at a given date and time

Answer: d;

86. What information is traditionally contained in a station log?

a) Date and time of contact
b) Band and/or frequency of the contact
c) Call sign of station contacted and the signal report given
d) All of these choices are correct

Answer: d;

87. What is QRP operation?

a) Remote Piloted Model control
b) Low power transmit operation, typically about 5 watts
c) Transmission using Quick Response Protocol
d) Traffic Relay Procedure net operation

Answer: b;

88. Which HF antenna would be the best to use for minimizing interference?

a) A bi-directional antenna
b) An isotropic antenna
c) A unidirectional antenna
d) An omnidirectional antenna

Answer: c;

89. Which of the following is required by the BTRC rules when operating in HF band?

a) If you are using other than a dipole antenna, you must keep a record of the gain of your antenna
b) You must keep a log of the date, time, frequency, power level and stations worked
c) You must keep a log of all third party traffic
d) You must keep a log of the manufacturer of your equipment and the antenna used

Answer: c;

90. Which mode should be selected when using a SSB transmitter with an Audio Frequency Shift Keying (AFSK) RTTY signal?

a) USB
b) DSB
c) CW
d) LSB

Answer: d;

91. How many data bits are sent in a single PSK31 character?

a) The number varies
b) 5
c) 7
d) 8

Answer: a;

92. What part of a data packet contains the routing and handling information?

a) Directory
b) Preamble
c) Header
d) Footer

Answer: c;

93. Which of the following 20 meter band segments is most often used for most data transmissions?

a) 14.000 - 14.050 MHz
b) 14.070 - 14.100 MHz
c) 14.150 - 14.225 MHz
d) 14.275 - 14.350 MHz

Answer: b;

94. Which of the following describes Baudot RTTY?

a) 7-bit code, with start, stop and parity bits
b) Utilizes error detection and correction
c) 5-bit code, with additional start and stop bits
d) Two major operating modes are SELCAL and LISTEN

Answer: c;

95. What is the most common frequency shift for RTTY emissions in the amateur HF bands?

a) 85 Hz
b) 170 Hz
c) 425 Hz
d) 850 Hz

Answer: b;

96. What does the abbreviation "RTTY" stand for?

a) Returning To You, meaning your turn to transmit
b) Radio-Teletype
c) A general call to all digital stations
d) Repeater Transmission Type

Answer: b;

97. What segment of the 80 meter band is most commonly used for data transmissions?

a) 3570 - 3600 kHz
b) 3500 - 3525 kHz
c) 3700 - 3750 kHz
d) 3775 - 3825 kHz

Answer: a;

98. Where PSK signals are generally found on the 20 meter band?

a) In the low end of the phone band
b) In the high end of the phone band
c) In the weak signal portion of the band
d) Around 14.070 MHz

Answer: d;

99. What is a major advantage of MFSK16 compared to other digital modes?

a) It is much higher speed than RTTY
b) It is much narrower bandwidth than most digital modes
c) It has built-in error correction
d) It offers good performance in weak signal environment without error correction

Answer: d;

100. What does the abbreviation "MFSK" stand for?

a) Manual Frequency Shift Keying
b) Multi (or Multiple) Frequency Shift Keying
c) Manual Frequency Sideband Keying
d) Multi (or Multiple) Frequency Sideband Keying

Answer: b;

101. Which of the following describes full break-in telegraphy (QSK)?

a) Breaking stations send the Morse code prosign BK
b) Automatic keyers are used to send Morse code instead of hand keys
c) An operator must activate a manual send/receive switch before and after every transmission
d) Incoming signals are received between transmitted code character elements**

Answer: d;

102. What should you do if a CW station sends "QRS" when using Morse code?

a) Send slower
b) Change frequency
c) Increase your power
d) Repeat everything twice.

Answer: a;

103. What does it mean when a CW operator sends "KN" at the end of a transmission?

a) Listening for novice stations
b) Operating full break-in
c) Listening only for a specific station or stations
d) Closing station now

Answer: c;

104. What does it mean when a CW operator sends "CL" at the end of a transmission?

a) Keep frequency clear
b) Operating full break-in
c) Listening only for a specific station or stations
d) Closing station

Answer: d;

105. What is the best speed to use answering a CQ in Morse Code?

a) The speed at which you are most comfortable copying
b) The speed at which the CQ was sent
c) A slow speed until contact is established
d) 5 wpm, as all operators licensed to operate CW can copy this speed

Answer: b;

106. What does the term zero beat mean in CW operation?

a) Matching the speed of the transmitting station
b) Operating split to avoid interference on frequency
c) Sending without error
d) Matching the frequency of the transmitting station**

Answer: d;

107. What prosign is sent using CW to indicate the end of a formal message?

a) SK
b) BK
c) AR
d) KN

Answer: c;

108. What does the Q signal "QSL" mean when operating CW?

a) Send slower
b) We have already confirmed by card
c) I acknowledge receipt
d) We have worked before

Answer: c;

109. What does the Q signal "QRQ" mean when operating CW?

a) Slow down
b) Send faster
c) Zero beat my signal
d) Quitting operation

Answer: b;

110. What does the Q signal "QRV" mean when operating CW?

a) You are sending too fast
b) There is interference on the frequency
c) I am quitting for the day
d) I am ready to receive messages

Answer: d;

111. When sending CW, what does a "C" mean when added to the RST report?

a) Chirpy or unstable signal
b) Report was read from S meter reading rather than estimated
c) 100 percent copy
d) Key clicks

Answer: a;

112. What can be done at an amateur station to continue communications during a sudden ionospheric disturbance?

a) Try a higher frequency
b) Try the other sideband
c) Try a different antenna polarization
d) Try a different frequency shift

Answer: a;

113. What effect does a Sudden Ionospheric Disturbance (SID) have on the daytime ionospheric propagation of HF radio waves?

a) It disrupts higher-latitude paths more than lower-latitude paths
b) It disrupts signals on lower frequencies more than those on higher frequencies
c) It disrupts communications via satellite more than direct communications
d) None, because only areas on the night side of the Earth are affected

Answer: b;

114. How long does it take the increased ultraviolet and X-ray radiation from solar flares to affect radio-wave propagation on the Earth?

a) 28 days
b) Several hours depending on the position of the Earth in its orbit
c) Approximately 8 minutes
d) 20 to 40 hours after the radiation reaches the Earth

Answer: b;

115. 115. What is measured by the solar flux index?

a) The density of the sun's magnetic field
b) The radio energy emitted by the sun
c) The number of sunspots on the side of the sun facing the Earth
d) A measure of the tilt of the Earth's ionosphere on the side toward the sun

Answer: b;

116. 116. What is the solar-flux index?

a) a. A measure of the highest frequency that is useful for ionospheric propagation between two points on the Earth
b) A count of sunspots which is adjusted for solar emissions
c) Another name for the American sunspot number
d) A measure of solar activity at 10.7 cm

Answer: d;

117. What is a geomagnetic disturbance?

a) A sudden drop in the solar-flux index
b) A shifting of the Earth's magnetic pole
c) Ripples in the ionosphere
d) A significant change in the Earth's magnetic field over a short period of time

Answer: d;

118. Which latitudes have propagation paths that are more sensitive to geomagnetic disturbances?

a) Those greater than 45 degrees North or South latitude
b) Those between 5 and 45 degrees North or South latitude
c) Those at or very near to the equator
d) All paths are affected equally

Answer: a;

119. What can be an effect of a geomagnetic storm on radio-wave propagation?

a) Improved high-latitude HF propagation
b) Degraded high-latitude HF propagation
c) Improved ground-wave propagation
d) Improved chances of UHF ducting

Answer: b;

120. What is the effect on radio communications when sunspot numbers are high?

a) High-frequency radio signals become weak and distorted
b) Frequencies above 300 MHz become usable for long-distance communication
c) Long-distance communication in the upper HF and lower VHF range is enhanced
d) Long-distance communication in the upper HF and lower VHF range is diminished

Answer: c;

121. What is the sunspot number?

a) A measure of solar activity based on counting sunspots and sunspot groups
b) A 3 digit identifier which is used to track individual sunspots
c) A measure of the radio flux from the sun measured at 10.7 cm
d) A measure of the sunspot count based on radio flux measurements

Answer: a;

122. How long is the typical sunspot cycle?

a) Approximately 8 minutes
b) Between 20 and 40 hours
c) Approximately 28 days
d) Approximately 11 years

Answer: d;

123. What is the K-index?

a) An index of the relative position of sunspots on the surface of the sun
b) A measure of the short term stability of the Earth's magnetic field
c) A measure of the stability of the sun's magnetic field
d) An index of solar radio flux measured at Boulder, Colorado

Answer: b;

124. 124. What is the A-index?

a) An index of the relative position of sunspots on the surface of the sun
b) The amount of polarization of the sun's electric field
c) An indicator of the long term stability of the Earth's geomagnetic field
d) An index of solar radio flux measured at Boulder, Colorado

Answer: c;

125. How are radio communications usually affected by the charged particles that reach the Earth from solar coronal holes?

a) HF communications are improved
b) HF communications are disturbed
c) VHF/UHF ducting is improved
d) VHF/UHF ducting is disturbed

Answer: b;

126. How long does it take charged particles from Coronal Mass Ejections to affect radio-wave propagation on the Earth?

a) 28 days
b) 14 days
c) The effect is instantaneous
d) 20 to 40 hours

Answer: d;

127. What is a possible benefit to radio communications resulting from periods of high geomagnetic activity?

a) Aurora that can reflect VHF signals
b) Higher signal strength for HF signals passing through the polar regions
c) Improved HF long path propagation
d) Reduced long delayed echoes

Answer: a;

128. At what point in the solar cycle does the 20 meter band usually support worldwide propagation during daylight hours?

a) At the summer solstice
b) Only at the maximum point of the solar cycle
c) Only at the minimum point of the solar cycle
d) At any point in the solar cycle

Answer: d;

129. If the HF radio-wave propagation (skip) is generally good on the 24-MHz and 28-MHz bands for several days, when might you expect a similar condition to occur?

a) 7 days later
b) 14 days later
c) 28 days later
d) 90 days later

Answer: c;

130. Which frequencies are least reliable for long distance communications during periods of low solar activity?

a) Frequencies below 3.5 MHz
b) Frequencies near 3.5 MHz
c) Frequencies at or above 10 MHz
d) Frequencies above 20 MHz

Answer: d;

131. Which band should offer the best chance for a successful contact if the maximum usable frequency (MUF) between the two stations is 22 MHz?

a) 10 meters
b) 15 meters
c) 20 meters
d) 40 meters

Answer: b;

132. Which band should offer the best chance for a successful contact if the maximum usable frequency (MUF) between the two stations s 16 MHz?

a) 80 meters

b) 40 meters
c) 20 meters
d) 2 meters

Answer: c;

133. Which of the following guidelines should be selected for lowest attenuation when transmitting on HF?

a) Select a frequency just below the MUF
b) Select a frequency just above the LUF
c) Select a frequency just below the critical frequency
d) Select a frequency just above the critical frequency

Answer: a;

134. What is a reliable way to determine if the maximum usable frequency (MUF) is high enough to support 28-MHz propagation between your station and Western Europe?

a) Listen for signals on a 28 MHz international beacon
b) Send a series of dots on the 28 MHz band and listen for echoes from your signal
c) Check the strength of TV signals from Western Europe
d) Listen to WWV propagation signals on the 28 MHz band

Answer: a;

135. What usually happens to radio waves with frequencies below the maximum usable frequency (MUF) when they are sent into the ionosphere?

a) They are bent back to the Earth
b) They pass through the ionosphere
c) They are completely absorbed by the ionosphere
d) They are bent and trapped in the ionosphere to circle the Earth

Answer: a;

136. What usually happens to radio waves with frequencies below the lowest usable frequency (LUF)?

a) a. They are bent back to the Earth
b) They pass through the ionosphere
c) They are completely absorbed by the ionosphere
d) They are bent and trapped in the ionosphere to circle the Earth

Answer: c;

137. What does LUF stand for?

a) The Lowest Usable Frequency for communications between two points
b) The Longest Universal Function for communications between two points
c) The Lowest Usable Frequency during a 24 hour period
d) The Longest Universal Function during a 24 hour period

Answer: a;

138. What does MUF stand for?

a) The Minimum Usable Frequency for communications between two points
b) The Maximum Usable Frequency for communications between two points
c) The Minimum Usable Frequency during a 24 hour period
d) The Maximum Usable Frequency during a 24 hour period

Answer: b;

139. What is the maximum distance along the Earth's surface that is normally covered in one hop using the F2 region?

a) 180 miles
b) 1,200 miles
c) 2,500 miles
d) 12,000 miles

Answer: c;

140. What is the maximum distance along the Earth's surface that is normally covered in one hop using the E region?

a) 180 miles
b) 1,200 miles
c) 2,500 miles
d) 12,000 miles

Answer: b;

141. What happens to HF propagation when the lowest usable frequency (LUF) exceeds the maximum usable frequency (MUF)?

a) No HF radio frequency will support communications over the path
b) HF communications over the path are enhanced at the frequency where the LUF and MUF are the same
c) Double hop propagation along the path is more common
d) Propagation over the path on all HF frequencies is enhanced

Answer: a;

142. What factors affect the maximum usable frequency (MUF)?

a) No HF radio frequency will support communications over the path
b) Time of day and season
c) Solar radiation and ionospheric disturbance
d) All of these choices are correct

Answer: d;

143. How might a sky-wave signal sound if it arrives at your receiver by both short path and long path propagation?

a) a. Periodic fading approximately every 10 seconds
b) Signal strength increased by 3 dB
c) The signal will be cancelled causing severe attenuation
d) A well-defined echo can be heard

Answer: d;

144. What are the propagation path or wave for HF radio contact.

a) Only ground wave propagation
b) Only sky wave propagation
c) Both ground wave and sky wave propagation
d) None of the above

Answer: c;

145. Which of the following ionospheric layers is closest to the surface of the Earth?

a) The D layer
b) The E layer
c) The F1 layer
d) The F2 layer

Answer: a;

146. When can the F2 region be expected to reach its maximum height at your location?

a) At noon during the summer
b) At midnight during the summer
c) At dusk in the spring and fall
d) At noon during the winter

Answer: a;

147. Why is the F2 region mainly responsible for the longest distance radio wave propagation?

a) Because it is the densest ionospheric layer
b) Because it does not absorb radio waves as much as other ionospheric regions
c) Because it is the highest ionospheric region
d) All of these choices are correct

Answer: c;

148. What does the term “critical angle” mean as used in radio wave propagation?

a) The long path azimuth of a distant station
b) The short path azimuth of a distant station
c) The lowest takeoff angle that will return a radio wave to the Earth under specific ionospheric conditions
d) The highest takeoff angle that will return a radio wave to the Earth under specific ionospheric conditions

Answer: d;

149. 149. Why is long distance communication on the 40, 60, 80 and 160 meter bands more difficult during the day?

a) The F layer absorbs these frequencies during daylight hours
b) The F layer is unstable during daylight hours

c) The D layer absorbs these frequencies during daylight hours
d) The E layer is unstable during daylight hours

Answer: c;

150. What is a characteristic of HF scatter signals?

a) They have high intelligibility
b) They have a wavering sound
c) They have very large swings in signal strength
d) All of these choices are correct

Answer: b;

151. What makes HF scatter signals often sound distorted?

a) The ionospheric layer involved is unstable
b) Ground waves are absorbing much of the signal
c) The E-region is not present
d) Energy is scattered into the skip zone through several radio wave paths

Answer: d;

152. Why are HF scatter signals in the skip zone usually weak?

a) Only a small part of the signal energy is scattered into the skip zone
b) Signals are scattered from the troposphere which is not a good reflector
c) Propagation is through ground waves which absorb most of the signal energy
d) Propagations is through ducts in F region which absorb most of the energy

Answer: a;

153. 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?

a) Ground wave
b) Scatter
c) Sporadic-E skip
d) Short-path skip

Answer: b;

154. Which of the following might be an indication that signals heard on the HF bands are being received via scatter propagation?

a) The communication is during a sunspot maximum
b) The communication is during a sudden ionospheric disturbance
c) The signal is heard on a frequency below the maximum usable frequency
d) The signal is heard on a frequency above the maximum usable frequency

Answer: d;

155. Which of the following is true about ionospheric absorption near the maximum usable frequency (MUF)?

a) Absorption will be minimum
b) Absorption is greater for vertically polarized waves
c) Absorption approaches maximum
d) Absorption is greater for horizontally polarized waves

Answer: a;

156. Which ionospheric layer is the most absorbent of long skip signals during daylight hours on frequencies below 10 MHz?

a) The F2 layer
b) The F1 layer
c) The E layer
d) The D layer

Answer: d;

157. What is Near Vertical Incidence Sky-wave (NVIS) propagation?

a) Propagation near the MUF
b) Short distance HF propagation using high elevation angles
c) Long path HF propagation at sunrise and sunset
d) Double hop propagation near the LUF

Answer: b;

158. Which of the following antennas will be most effective for skip communications on 40 meters during the day?

a) a. A vertical antenna
b) A horizontal dipole placed between 1/8 and 1/4 wavelength above the ground
c) A left-hand circularly polarized antenna
d) A right-hand circularly polarized antenna

Answer: b;

159. Which of the following is one use for a DSP in an amateur station?

a) To provide adequate grounding
b) To remove noise from received signals
c) To increase antenna gain
d) To increase antenna bandwidth

Answer: b;

160. Which of the following instruments may be used to measure the output of a single-sideband transmitter when performing a two-tone test of amplitude linearity?

a) An audio distortion analyzer
b) An oscilloscope
c) A directional wattmeter
d) A high impedance audio voltmeter

Answer: b;

161. Which of the following is needed for a DSP IF filter?

a) An Analog to Digital Converter
b) Digital to Analog Converter
c) A Digital Processor Chip
d) All of the these answers are correct

Answer: d;

162. Which of the following is an advantage of a receiver IF filter created with a DSP as compared to an analog filter?

a) A wide range of filter bandwidths and shapes can be created
b) Fewer digital components are required
c) Mixing products are greatly reduced
d) The DSP filter is much more effective at VHF frequencies

Answer: a;

163. 163. How is DSP filtering accomplished?

a) By using direct signal phasing
b) 'y converting the signal from analog to digital and using digital processing
c) By up-converting the signal to VHF
d) By converting the signal from digital to analog and taking the difference of mixing products

Answer: b;

164. 164. What are the two types of transistor we use in general?

a) NPN and PNP
b) NPP and PNP
c) NPP and NPN
d) PNP and PMP

Answer: a;

165. Why we use a linear RF amplifier?

a) To decrease the out put RF power of the transmitter
b) To increase the out put RF power of the transmitter
c) To fine tune the out put RF power of the transmitter
d) To increase the out put RF power of the antenna

Answer: b;

166. Which of the following techniques is used to neutralize an RF amplifier?

a) Feed-forward compensation
b) Feed-forward cancellation
c) Negative feedback
d) Positive feedback

Answer: c;

167. What does a neutralizing circuit do in an RF amplifier?

a) It controls differential gain
b) It cancels the effects of positive feedback
c) It eliminates AC hum from the power supply
d) It reduces incidental grid modulation

Answer: b;

168. What is the reason for neutralizing the final amplifier stage of a transmitter?

a) To limit the modulation index
b) To eliminate self oscillations
c) To cut off the final amplifier during standby periods
d) To keep the carrier on frequency

Answer: b;

169. What type of transmitter performance does a two-tone test analyze?

a) Linearity
b) Carrier and undesired sideband suppression
c) Percentage of frequency modulation
d) Percentage of carrier phase shift

Answer: a;

170. What is the meaning of AVO meter we are using as testing device?

a) Ampere Velocity Ohms measuring meter
b) Acceleration Volt Ohms measuring meter
c) Accelaration Velocity Ohms measuring meter
d) Ampere Volt Ohms measuring meter

Answer: d;

171. Which of the following performs automatic notching of interfering carriers?

a) Band pass tuning
b) A DSP filter
c) Balanced mixing
d) A noise limiter

Answer: b;

172. What item of test equipment contains horizontal and vertical channel amplifiers?

a) An ohmmeter
b) A signal generator
c) An ammeter
d) An oscilloscope

Answer: d;

173. Which of the following is an advantage of an oscilloscope versus a digital voltmeter?

a) An oscilloscope uses less power
b) Complex impedances can be easily measured
c) Input impedance is much lower
d) Complex waveforms can be measured

Answer: d;

174. What we can do by a Spectrum Analyzer?

a) We can measure the RF power
b) We can measure a single frequency
c) We can measure multiple frequency at the same time
d) We can locate a hidden transmitter

Answer: c;

175. How is a noise bridge normally used?

a) It is connected at an antenna's feed point and reads the antenna's noise figure
b) It is connected between a transmitter and an antenna and tuned for minimum SWR
c) It is connected between a receiver and an antenna of unknown impedance and is adjusted for minimum noise
d) It is connected between an antenna and ground and tuned for minimum SWR

Answer: c;

176. Which of the following is the best instrument to use to check the keying waveform of a CW transmitter?

a) A monitoring oscilloscope
b) A field-strength meter
c) A sidetone monitor
d) A wavemeter

Answer: a;

177. What signal source is connected to the vertical input of a monitoring oscilloscope when checking the quality of a transmitted signal?

a) The local oscillator of the transmitter
b) The audio input of the transmitter
c) The transmitter balanced mixer output
d) The attenuated RF output of the transmitter

Answer: d;

178. What is an advantage of a digital voltmeter as compared to an analog voltmeter?

a) Better for measuring computer circuits
b) Better for RF measurements
c) Significantly better precision for most uses
d) Faster response

Answer: c;

179. What instrument may be used to monitor relative RF output when making antenna and transmitter adjustments?

a) A field-strength meter
b) An antenna noise bridge
c) A multimeter
d) A Q meter

Answer: a;

180. How much must the power output of a transmitter be raised to change the "S" meter reading on a distant receiver from S8 to S9?

a) Approximately 2 times
b) Approximately 3 times
c) Approximately 4 times
d) Approximately 5 times

Answer: c;

181. Which of the following can be determined with a field strength meter?

a) The radiation resistance of an antenna
b) The radiation pattern of an antenna
c) The presence and amount of phase distortion of a transmitter
d) The presence and amount of amplitude distortion of a transmitter

Answer: b;

182. Which of the following might be a use for a field strength meter?

a) Close-in radio direction-finding
b) A modulation monitor for a frequency or phase modulation transmitter
c) An overmodulation indicator for a SSB transmitter
d) A keying indicator for a RTTY or packet transmitter

Answer: a;

183. What is one way a noise bridge might be used?

a) Determining an antenna's gain in dBi
b) Pre-tuning an antenna tuner
c) Pre-tuning a linear amplifier
d) Determining the line loss of the antenna system

Answer: b;

184. What is one measurement that can be made with a dip meter?

a) The resonant frequency of a circuit
b) The tilt of the ionosphere
c) The gain of an antenna
d) The notch depth of a filter

Answer: a;

185. Which of the following must be connected to an antenna analyzer when it is being used for SWR measurements?

a) a. Receiver
b) Transmitter
c) Antenna and feedline
d) All of these answers are correct

Answer: c;

186. Which of the following can be measured with a directional wattmeter?

a) Standing Wave Ratio
b) Antenna front-to-back ratio
c) RF interference
d) Radio wave propagation

Answer: a;

187. Why is high input impedance desirable for a voltmeter?

a) It improves the frequency response
b) It decreases battery consumption in the meter
c) It improves the resolution of the readings
d) It decreases the loading on circuits being measured

Answer: d;

188. Which of the following might be useful in reducing RF interference to audio-frequency devices?

a) Bypass inductor
b) Bypass capacitor
c) Forward-biased diode
d) Reverse-biased diode

Answer: b;

189. Which of the following should be installed if a properly operating amateur station is interfering with a nearby telephone?

a) An RFI filter on the transmitter
b) An RFI filter at the affected telephone
c) A high pass filter on the transmitter
d) A high pass filter at the affected telephone

Answer: b;

190. What sound is heard from a public-address system if there is interference from a nearby single-sideband phone transmitter?

a) A steady hum whenever the transmitter is on the air
b) On-and-off humming or clicking

c) Distorted speech
d) Clearly audible speech

Answer: c;

191. What is the effect on a public-address system if there is interference from nearby CW transmitter?

a) On-and-off humming or clicking
b) A CW signal at a nearly pure audio frequency
c) A chirpy CW signal
d) Severely distorted audio

Answer: a;

192. What might be the problem if you receive an RF burn when touching your equipment while transmitting on a HF band, assuming the equipment is connected to a ground rod?

a) Flat braid rather than round wire has been used for the ground wire
b) Insulated wire has been used for the ground wire
c) The ground rod is resonant
d) The ground wire is resonant

Answer: c;

193. Which of the following is an important reason to have a good station ground?

a) To reduce the likelihood of RF burns
b) To reduce the likelihood of electrical shock
c) To reduce interference
d) All of these answers are correct

Answer: d;

194. What is one good way to avoid stray RF energy in an amateur station?

a) Keep the station's ground wire as short as possible
b) Install an RF filter in series with the ground wire
c) Use a ground loop for best conductivity
d) Install a few ferrite beads on the ground wire where it connects to your station

Answer: a;

195. Which of the following is a reason to place ferrite beads around audio cables to reduce common mode RF interference?

a) They act as a series inductor
b) They act as a shunt capacitor
c) They lower the impedance of the cable
d) They increase the admittance of the cable

Answer: a;

196. Which of the following statements about station grounding is true?

a) The chassis of each piece of station equipment should be tied together with high-impedance conductors
b) If the chassis of all station equipment is connected with a good conductor, there is no need to tie them to an earth ground
c) RF hot spots can occur in a station located above the ground floor if the equipment is grounded by a long ground wire
d) A ground loop is an effective way to ground station equipment

Answer: c;

197. Which of the following is covered in the National Electrical Code?

a) Acceptable bandwidth limits
b) Acceptable modulation limits
c) Electrical safety inside the ham shack
d) RF exposure limits of the human body

Answer: c;

198. Which of the following can cause unintended rectification of RF signal energy and can result in interference to your station as well as nearby radio and TV receivers?

a) Induced currents in conductors that are in poor electrical contact
b) Induced voltages in conductors that are in good electrical contact
c) Capacitive coupling of the RF signal to ground
d) Excessive standing wave ratio (SWR) of the transmission line system

Answer: a;

199. What is one cause of broadband radio frequency interference at an amateur radio station?

a) Not using a balun or line isolator to feed balanced antennas
b) Lack of rectification of the transmitter's signal in power conductors
c) Arcing at a poor electrical connection
d) The use of horizontal, rather than vertical antennas

Answer: c;

200. How can a ground loop be avoided?

a) Series connect all ground conductors
b) Connect the AC neutral conductor to the ground wire
c) Avoid using lock washers and star washers in making ground connections
d) Connect all ground conductors to a single point

Answer: d;

201. What is the reason for using a properly adjusted speech processor with a single sideband phone transmitter?

a) It reduces average transmitter power requirements
b) It reduces unwanted noise pickup from the microphone
c) It improves voice-frequency fidelity
d) It improves signal intelligibility at the receiver

Answer: d;

202. Which of the following describes how a speech processor affects a transmitted single sideband signal?

a) It increases the peak power
b) It increases the average power
c) It reduces harmonic distortion
d) It reduces inter-modulation distortion

Answer: b;

203. Which of the following can be the result of an incorrectly adjusted speech processor?

a) Distorted speech
b) Splatter
c) Excessive background pickup
d) All of these answers are correct

Answer: d;

204. What does an S-meter measure?

a) Conductance
b) Impedance
c) Received signal strength
d) Transmitter power output

Answer: c;

205. How does an S-meter reading of 20 db over S-9 compare to an S-9 signal, assuming a properly calibrated S meter?

a) a. It is 10 times weaker
b) It is 20 times weaker
c) It is 20 times stronger
d) It is 100 times stronger

Answer: d;

206. Where an S-meter is generally found?

a) In a receiver
b) In a SWR bridge
c) In a transmitter
d) In a conductance bridge

Answer: a;

207. Which of the following describes a Type-N connector?

a) A moisture resistant RF connector useful to 10 GHz
b) A small bayonet connector used for data circuits
c) A threaded connector used for hydraulic systems
d) An audio connector used in surround sound installations

Answer: a;

208. Which of the following connectors would be a good choice for a serial data port?

a) PL-259
b) Type N
c) Type SMA
d) DB-9

Answer: d;

209. Which of these connector types is commonly used for RF service at frequencies up to 150 MHz?

a) a. Octal
b) RJ-11
c) PL-259
d) DB-25

Answer: c;

210. Which of these connector types is commonly used for audio signals in amateur radio stations?

a) a. PL-259
b) BNC
c) RCA Phono
d) Type N

Answer: c;

211. What is the main reason to use keyed connectors over non-keyed types?

a) Prevention of use by unauthorized persons
b) Reduced chance of damage due to incorrect mating
c) Higher current carrying capacity
d) All of these choices are correct

Answer: b;

212. Which of the following emission types are permissible while operating HF mobile?

a) CW
b) SSB
c) FM
d) All of these choices are correct

Answer: d;

213. What is alternator whine?

a) A DC emission from the alternator
b) A constant pitched tone or buzz in transmitted or received audio that occurs whenever the ignition key is in the on position
c) A tone or buzz in transmitted or received audio that varies with engine speed
d) A mechanical sound from the alternator indicating current overload

Answer: c;

214. Which of the following power connections would be the best for a 100-watt HF mobile installation?

a) A direct, fused connection to the battery using heavy gauge wire
b) A direct, fused connection to the alternator or generator using heavy gauge wire
c) A direct, fused connection to the battery using resistor wire
d) A direct, fused connection to the alternator or generator using resistor wire

Answer: a;

215. Why is it best NOT to draw the DC power for a 100-watt HF transceiver from an automobile's cigarette lighter socket?

a) The socket is not wired with an RF-shielded power cable
b) The socket's wiring may be inadequate for the current being drawn by the transceiver
c) The DC polarity of the socket is reversed from the polarity of modern HF transceivers
d) The power from the socket is never adequately filtered for HF transceiver operation

Answer: b;

216. Which of the following most limits the effectiveness of an HF mobile transceiver operating in the 75 meter band?

a) Picket Fencing' signal variation
b) The wire gauge of the DC power line to the transceiver
c) The HF mobile antenna system
d) BTRC rules limiting mobile output power on the 75 meter band

Answer: c;

217. Which of the following is true of an emergency generator installation?

a) The generator should be located in a well ventilated area
b) The generator should be insulated from ground
c) Fuel should be stored near the generator for rapid refueling in case of an emergency
d) All of these choices are correct

Answer: a;

218. When might a lead-acid storage battery give off explosive hydrogen gas?

a) When stored for long periods of time
b) When being discharged
c) When being charged
d) When not placed on a level surface

Answer: c;

219. What is the name of the process by which sunlight is changed directly into electricity?

a) Photovoltaic conversion
b) Photon emission

c) Photosynthesis
d) Photon decomposition

Answer: a;

220. Which of these materials is used as the active element of a solar cell?

a) Doped Silicon
b) Nickel Hydride
c) Doped Platinum
d) Aluminum nitride

Answer: a;

221. Which of the following is a disadvantage to using wind power as the primary source of power for an emergency station?

a) The conversion efficiency from mechanical energy to electrical energy is less that2 percent
b) The voltage and current ratings of such systems are not compatible with amateur equipment
c) A large energy storage system is needed to supply power when the wind is not blowing
d) All of these choices are correct

Answer: c;

222. Which of the following is a primary reason for not placing a gasoline-fueled generator inside an occupied area?

a) Danger of carbon monoxide poisoning
b) Danger of engine over torque
c) Lack of oxygen for adequate combustion
d) Lack of nitrogen for adequate combustion

Answer: a;

223. Why would it be unwise to power your station by back feeding the output of a gasoline generator into your house wiring by connecting the generator through an AC wall outlet?

a) It might present a hazard for electric company workers
b) It is prone to RF interference
c) It may disconnect your RF ground
d) None of the above; this is an excellent expedient

Answer: a;

224. What is impedance?
a) The electric charge stored by a capacitor
b) The inverse of resistance
c) The opposition to the flow of current in an AC circuit
d) The force of repulsion between two similar electric fields

Answer: c;

225. What is reactance?

a) Opposition to the flow of direct current caused by resistance
b) Opposition to the flow of alternating current caused by capacitance or inductance
c) A property of ideal resistors in AC circuits
d) A large spark produced at switch contacts when an inductor is deenergized

Answer: b;

226. Which of the following causes opposition to the flow of alternating current in an inductor?

a) Conductance
b) Reluctance
c) Admittance
d) Reactance

Answer: d;

227. Which of the following causes opposition to the flow of alternating current in a capacitor?

a) Conductance
b) Reluctance
c) Reactance
d) Admittance

Answer: c;

228. How does a coil react to AC?

a) As the frequency of the applied AC increases, the reactance decreases
b) As the amplitude of the applied AC increases, the reactance increases
c) As the amplitude of the applied AC increases, the reactance decreases
d) As the frequency of the applied AC increases, the reactance increases

Answer: d;

229. How does a capacitor react to AC?

a) As the frequency of the applied AC increases, the reactance decreases
b) As the frequency of the applied AC increases, the reactance increases
c) As the amplitude of the applied AC increases, the reactance increases
d) As the amplitude of the applied AC increases, the reactance decreases

Answer: a;

230. What happens when the impedance of an electrical load is equal to the internal impedance of the power source?

a) The source delivers minimum power to the load
b) The electrical load is shorted
c) No current can flow through the circuit
d) The source can deliver maximum power to the load

Answer: d;

231. Why is impedance matching important?

a) So the source can deliver maximum power to the load
b) So the load will draw minimum power from the source
c) To ensure that there is less resistance than reactance in the circuit
d) To ensure that the resistance and reactance in the circuit are equal

Answer: a;

232. What unit is used to measure reactance?

a) Farad
b) Ohm
c) 'Ampere
d) Siemens

Answer: b;

233. What unit is used to measure impedance?

a) Volt
b) Ohm
c) Ampere
d) Watt

Answer: b;

234. Why should core saturation of a conventional impedance matching transformer be avoided?

a) Harmonics and distortion could result
b) Magnetic flux would increase with frequency
c) RF susceptance would increase
d) Temporary changes of the core permeability could result

Answer: a;

235. What is one reason to use an impedance matching transformer?

a) To reduce power dissipation in the transmitter
b) To maximize the transfer of power
c) To minimize SWR at the antenna
d) To minimize SWR in the transmission line

Answer: b;

236. Which of the following devices can be used for impedance matching at radio frequencies?

a) A transformer
b) A Pi-network
c) A length of transmission line
d) All of these choices are correct

Answer: d;

237. Which of the following describes one method of impedance matching between two AC circuits?

a) Insert an LC network between the two circuits
b) Reduce the power output of the first circuit
c) Increase the power output of the first circuit
d) Insert a circulator between the two circuits

Answer: a;

238. A two-times increase or decrease in power results in a change of how many dB?

a) 2 dB
b) 3 dB
c) 6 dB
d) 12 dB

Answer: b;

239. How does the total current relate to the individual currents in each branch of a parallel circuit?

a) It equals the average of each branch current
b) It decreases as more parallel branches are added to the circuit
c) It equals the sum of the currents through each branch
d) It is the sum of the reciprocal of each individual voltage drop

Answer: c;

240. What is the correct formula for Ohms law

a) V=R*I
b) R=V*I
c) I=V*R
d) None of the above

Answer: a;

241. Which measurement of an AC signal is equivalent to a DC voltage of the same value?

a) The peak-to-peak value
b) The peak value
c) The RMS value
d) The reciprocal of the RMS value

Answer: c;

242. What is the peak-to-peak voltage of a sine wave that has an RMS voltage of 120 volts?

a) a. 84.8 volts
b) 169.7 volts
c) 240.0 volts
d) 339.4 volts

Answer: d;

243. Where the source of energy is normally connected in a transformer?

a) To the secondary winding

b) To the primary winding
c) To the core
d) To the plates

Answer: b;

244. What is current in the primary winding of a transformer called if no load is attached to the secondary?

a) Magnetizing current
b) Direct current
c) Excitation current
d) Stabilizing current

Answer: a;

245. What is the total resistance of three 100-ohm resistors in parallel?

a) .30 ohms
b) .33 ohms
c) 33.3 ohms
d) 300 ohms

Answer: c;

246. What is the value of each resistor if three equal value resistors in parallel produce 50 ohms of resistance, and the same three resistors in series produce 450 ohms?

a) 1500 ohms
b) 90 ohms
c) 150 ohms
d) 175 ohms

Answer: c;

247. What is the turns ratio of a transformer used to match an audio amplifier having a 600-ohm output impedance to a speaker having a 4-ohm impedance

a) 12.2 to 1
b) 24.4 to 1
c) 150 to 1
d) 300 to 1

Answer: a;

248. What is the equivalent capacitance of two 5000 Pico farad capacitors and one 750 Pico farad capacitor connected in parallel?

a) 576.9 picofarads
b) 1733 picofarads
c) 3583 picofarads
d) 10750 picofarads

Answer: d;

249. What is the capacitance of three 100 microfarad capacitors connected in series?

a) .30 microfarads
b) .33 microfarads
c) 33.3 microfarads
d) 300 microfarads

Answer: c;

250. What component should be added to a capacitor in a circuit to increase the circuit capacitance?

a) An inductor in series
b) A resistor in series
c) A capacitor in parallel
d) A capacitor in series

Answer: c;

251. What component should be added to an inductor in a circuit to increase the circuit inductance?

a) A capacitor in series
b) A resistor in parallel
c) An inductor in parallel
d) An inductor in series

Answer: d;

252. What is the total resistance of a 10 ohm, a 20 ohm, and a 50 ohm resistor in parallel?

a) 5.9 ohms
b) 0.17 ohms
c) 10000 ohms
d) 80 ohms

Answer: a;

253. What component should be added to an existing resistor in a circuit to increase circuit resistance?

a) A resistor in parallel
b) A resistor in series
c) A capacitor in series
d) A capacitor in parallel

Answer: b;

254. What will happen to the resistance if the temperature of a carbon resistor is increased?

a) It will increase by 20% for every 10 degrees centigrade
b) It will stay the same
c) It will change depending on the resistor's temperature coefficient rating
d) It will become time dependent

Answer: c;

255. What type of capacitor is often used in power-supply circuits to filter the rectified AC?

a) Disc ceramic
b) Vacuum variable
c) Mica
d) Electrolytic

Answer: d;

256. Which of the following is the primary advantage of ceramic capacitors?

a) Tight tolerance
b) High stability
c) High capacitance for given volume
d) Comparatively low cost

Answer: d;

257. Which of the following is an advantage of an electrolytic capacitor?

a) Tight tolerance
b) Non-polarized
c) High capacitance for given volume
d) Inexpensive RF capacitor

Answer: c;

258. Which of the following is one effect of lead inductance in a capacitor used at VHF and above?

a) Effective capacitance may be reduced
b) Voltage rating may be reduced
c) ESR may be reduced
d) The polarity of the capacitor might become reversed

Answer: a;

259. What is the main disadvantage of using a conventional wire-wound resistor in a resonant circuit?

a) The resistor's tolerance value would not be adequate for such a circuit
b) The resistor's inductance could detune the circuit
c) The resistor could overheat
d) The resistor's internal capacitance would detune the circuit

Answer: b;

260. What is an advantage of using a ferrite core with a toroidal inductor?

a) Large values of inductance may be obtained
b) The magnetic properties of the core may be optimized for a specific range of frequencies
c) Most of the magnetic field is contained in the core
d) All of these choices are correct

Answer: d;

261. How should two solenoid inductors be placed so as to minimize their mutual inductance?

a) In line with their winding axis
b) With their winding axes parallel to each other
c) With their winding axes at right angles to each another
d) Within the same shielded enclosure

Answer: c;

262. Why might it be important to minimize the mutual inductance between two inductors?

a) To increase the energy transfer between both circuits
b) To reduce or eliminate unwanted coupling
c) To reduce conducted emissions
d) To increase the self-resonant frequency of both inductors

Answer: b;

263. What is an effect of inter-turn capacitance in an inductor?

a) The magnetic field may become inverted
b) The inductor may become self resonant at some frequencies
c) The permeability will increase
d) The voltage rating may be exceeded

Answer: b;

264. What is the common name for a capacitor connected across a transformer secondary that is used to absorb transient voltage spikes?

a) Clipper capacitor
b) Trimmer capacitor
c) Feedback capacitor
d) Suppressor capacitor

Answer: d;

265. What is the common name for an inductor used to help smooth the DC output from the rectifier in a conventional power supply?

a) Back EMF choke
b) Repulsion coil
c) Charging inductor
d) Filter choke

Answer: d;

266. What type of component is a thermistor?

a) A resistor that is resistant to changes in value with temperature variations
b) A device having a controlled change in resistance with temperature variations
c) A special type of transistor for use at very cold temperatures
d) A capacitor that changes value with temperature

Answer: b;

267. What are the two major ratings that must not be exceeded for silicon-diode rectifiers?

a) Peak inverse voltage; average forward current
b) Average power; average voltage
c) Capacitive reactance; avalanche voltage
d) Peak load impedance; peak voltage

Answer: b;

268. What is the approximate junction threshold voltage of a germanium diode?

a) a. 0.1 volt
b) 0.3 volts
c) 0.7 volts
d) 1.0 volts

Answer: b;

269. When two or more diodes are connected in parallel to increase current handling capacity, what is the purpose of the resistor connected in series with each diode?

a) The resistors ensure the thermal stability of the power supply
b) The resistors regulate the power supply output voltage
c) The resistors ensure that one diode doesn't carry most of the current
d) The resistors act as swamping resistors in the circuit

Answer: c;

270. What is the approximate junction threshold voltage of a silicon diode?

a) a. 0.1 volt
b) 0.3 volts
c) 0.7 volts
d) 1.0 volts

Answer: c;

271. What are the stable operating points for a bipolar transistor that is used as a switch in a logic circuit?

a) a. Its saturation and cut-off regions
b) Its active region (between the cut-off and saturation regions)
c) Between its peak and valley current points
d) Between its enhancement and deletion modes

Answer: a;

272. Why is it often necessary to insulate the case of a large power transistor?

a) To increase the beta of the transistor
b) To improve the power dissipation capability
c) To reduce stray capacitance
d) To avoid shorting the collector or drain voltage to ground

Answer: d;

273. 273. Which of the following describes the construction of a MOSFET?

a) The gate is formed by a back-biased junction
b) The gate is separated from the channel with a thin insulating layer
c) The source is separated from the drain by a thin insulating later
d) The source is formed by depositing metal on silicon

Answer: b;

274. Which element of a triode vacuum tube is used to regulate the flow of electrons between cathode and plate?

a) Control grid
b) Heater
c) Screen Grid
d) Suppressor grid

Answer: a;

275. Which of the following Solid state devices are most like a vacuum tube in its general characteristics?

a) A bipolar transistor
b) An FET
c) A tunnel diode
d) A varistor

Answer: b;

276. What is the primary purpose of a screen grid in a vacuum tube?

a) To reduce grid-to-plate capacitance
b) To increase efficiency
c) To increase the high frequency response
d) To decrease plate resistance

Answer: a;

277. What is an advantage of the low internal resistance of Nickel Cadmium batteries?

a) Long life
b) High discharge current
c) High voltage
d) Rapid recharge

Answer: b;

278. What is the minimum allowable discharge voltage for maximum life of a standard 12 volt lead acid battery?

a) 6 volts
b) 8.5 volts
c) 10.5 volts
d) 12 volts

Answer: c;

279. When is it acceptable to recharge a carbon-zinc primary cell?

a) As long as the voltage has not been allowed to drop below 1.0 volt
b) When the cell is kept warm during the recharging period
c) When a constant current charger is used
d) Never

Answer: d;

280. Which of the following is a rechargeable battery?

a) Carbon-zinc
b) Silver oxide
c) Nickel Metal Hydride
d) Mercury

Answer: c;

281. Which of the following is most often provided as an analog integrated circuit?

a) NAND Gate
b) Gallium Arsenide UHF Receiver front end Amplifier
c) Frequency Counter
d) Linear voltage regulator

Answer: d;

282. Which of the following is the most commonly used digital logic family of integrated circuits?
a) RTL
b) TTL
c) CMOS
d) PMOS

Answer: a;

283. Which of the following is an advantage of CMOS Logic integrated circuits compared to TTL logic circuits?

a) Low power consumption
b) High power handling capability
c) Better suited for RF amplification
d) Better suited for power supply regulation

Answer: a;

284. 284. What is meant by the term ROM?

a) Resistor Operated Memory
b) Read Only Memory
c) Random Operational Memory
d) Resistant to Overload Memory

Answer: b;

285. 285. What is meant when memory is characterized as non-volatile?

a) It is resistant to radiation damage
b) It is resistant to high temperatures
c) The stored information is maintained even if power is removed**
d) The stored information cannot be changed once written

Answer: c;

286. Which type of integrated circuit is an operational amplifier?

a) Digital
b) MMIC
c) Programmable
d) Analog

Answer: d;

287. What is one disadvantage of an incandescent indicator compared to a LED?

a) Low power consumption
b) High speed
c) Long life
d) High power consumption

Answer: d;

288. How is an LED biased when emitting light?

a) Beyond cutoff
b) At the Zener voltage
c) Reverse Biased
d) Forward Biased

Answer: d;

289. Which of the following is a characteristic of a liquid crystal display?

a) It requires ambient or back lighting
b) It offers a wide dynamic range
c) It has a wide viewing angle
d) All of these choices are correct

Answer: a;

290. What is meant by the term MMIC?

a) Multi Megabyte Integrated Circuit
b) Monolithlic Microwave Integrated Circuit**
c) Military-specification Manufactured Integrated Circuit
d) Mode Modulated Integrated Circuit

Answer: b;

291. What is a microprocessor?

a) A low powered analog signal processor used as a microwave detector
b) A miniature computer on a single integrated circuit chip**
c) A microwave detector, amplifier, and local oscillator on a chip
d) A low voltage amplifier used in a microwave transmitter modulator stage

Answer: b;

292. What two devices in an amateur radio station might be connected using a USB interface?

a) Computer and transceiver
b) Microphone and transceiver
c) Amplifier and antenna
d) Power supply and amplifier

Answer: a;

293. What safety feature does a power-supply bleeder resistor provide?

a) It acts as a fuse for excess voltage
b) It discharges the filter capacitors
c) It removes shock hazards from the induction coils
d) It eliminates ground-loop current

Answer: b;

294. What components are used in a power-supply filter network?

a) Diodes
b) Transformers and transistors
c) Quartz crystals
d) Capacitors and inductors

Answer: d;

295. What should be the minimum peak-inverse-voltage rating of the rectifier in a full-wave power supply?

a) One-quarter the normal output voltage of the power supply
b) Half the normal output voltage of the power supply
c) Double the normal peak output voltage of the power supply
d) Equal to the normal output voltage of the power supply

Answer: c;

296. What should be the approximate minimum peak-inverse-voltage rating of the rectifier in a half-wave power supply?

a) a. One-half the normal peak output voltage of the power supply
b) Half the normal output voltage of the power supply
c) Equal to the normal output voltage of the power supply
d) Two times the normal peak output voltage of the power supply

Answer: d;

297. What should be the impedance of a low-pass filter as compared to the impedance of the transmission line into which it is inserted?

a) Substantially higher
b) About the same
c) Substantially lower
d) Twice the transmission line impedance

Answer: b;

298. Which of the following might be used to process signals from the balanced modulator and send them to the mixer in a single-sideband phone transmitter?

a) Carrier oscillator
b) Filter
c) IF amplifier
d) RF amplifier

Answer: b;

299. Which circuit is used to combine signals from the carrier oscillator and speech amplifier and send the result to the filter in a typical single-sideband phone transmitter?

a) Mixer
b) Detector
c) IF amplifier
d) Balanced modulator

Answer: a & d;

300. What circuit is used to process signals from the RF amplifier and local oscillator and send the result to the IF filter in a superheterodyne receiver?

a) Balanced modulator
b) IF amplifier
c) Mixer
d) Detector

Answer: c;

301. What circuit is used to process signals from the IF amplifier and BFO and send the result to the AF amplifier in a single-side and phone superheterodyne receiver?

a) RF oscillator
b) IF filter
c) Balanced modulator
d) Product detector

Answer: d;

302. What is an advantage of a crystal controlled transmitter?

a) Stable output frequency

b) Excellent modulation clarity
c) Ease of switching between bands
d) Ease of changing frequency

Answer: a;

303. What is the simplest combination of stages that can be combined to implement a superheterodyne receiver?

a) RF amplifier, detector, audio amplifier
b) RF amplifier, mixer, if amplifier
c) HF oscillator, mixer, detector
d) HF oscillator, product detector, audio amplifier

Answer: c;

304. What type of receiver is suitable for CW and SSB reception but does not require a mixer stage or an IF amplifier?

a) A super-regenerative receiver
b) A TRF receiver
c) A super-heterodyne receiver
d) A direct conversion receiver

Answer: d;

305. What type of circuit is used in many FM receivers to convert signals coming from the IF amplifier to audio?

a) Product detector
b) Phase inverter
c) Mixer
d) Discriminator

Answer: d;

306. Which of the following is a desirable characteristic for capacitors used to filter the DC output of a switching power supply?

a) Low equivalent series resistance
b) High equivalent series resistance
c) Low Temperature coefficient
d) High Temperature coefficient

Answer: a;

307. Which of the following is an advantage of a switched-mode power supply as compared to a linear power supply?

a) Faster switching time makes higher output voltage possible
b) Fewer circuit components are required
c) High frequency operation allows the use of smaller components
d) All of these choices are correct

Answer: c;

308. What portion of the AC cycle is converted to DC by a half-wave rectifier?

a) 90 degrees
b) 180 degrees
c) 270 degrees
d) 360 degrees

Answer: b;

309. What portion of the AC cycle is converted to DC by a full-wave rectifier?

a) 90 degrees
b) 180 degrees
c) 270 degrees
d) 360 degrees

Answer: d;

310. What is the output waveform of an unfiltered full-wave rectifier connected to a resistive load?

a) A series of DC pulses at twice the frequency of the AC input
b) A series of DC pulses at the same frequency as the AC input
c) A sine wave at half the frequency of the AC input
d) A steady DC voltage

Answer: a;

311. Which of the following describes a flip-flop circuit?

a) A transmit-receive circuit
b) A digital circuit with two stable states
c) An RF limiter
d) A voice-operated switch

Answer: b;

312. Why do digital circuits use the binary number system?

a) Binary "ones" and "zeros" are easy to represent with an "on" or "off" state
b) The binary number system is most accurate
c) Binary numbers are more compatible with analog circuitry
d) All of these answers are correct

Answer: a;

313. What is the output of a two-input NAND gate, given both inputs are “one”?

a) Two
b) One
c) Zero
d) Minus One

Answer: c;

314. What is the output of a NOR gate given that both inputs are “zero”?

a) Zero
b) One
c) Minus one
d) The opposite from the previous state

Answer: b;

315. How many states are there in a 3-bit binary counter?

a) 3
b) 6
c) 8
d) 16

Answer: c;

316. What is a shift register?

a) A clocked array of circuits that passes data in steps along the array
b) An array of operational amplifiers used for tri-state arithmetic operations
c) A digital mixer
d) An analog mixer

Answer: b;

317. What are the basic components of virtually all oscillators?

a) An amplifier and a divider
b) A frequency multiplier and a mixer
c) A circulator and a filter operating in a feed-forward loop
d) A filter and an amplifier operating in a feedback loop

Answer: d;

318. Which of the following is a characteristic of a Class A amplifier?

a) Low standby power
b) High Efficiency
c) No need for bias
d) Low distortion

Answer: d;

319. For which of the following modes is a Class C power stage appropriate for amplifying a modulated signal?

a) SSB
b) CW
c) AM
d) All of these answers are correct

Answer: b;

320. Which of the following is an advantage of a Class C amplifier?

a) High efficiency
b) Linear operation
c) No need for tuned circuits
d) All of these answers are correct

Answer: a;

321. How is the efficiency of an RF power amplifier determined?

a) Divide the DC input power by the DC output power
b) Divide the RF output power by the DC input power**
c) Multiply the RF input power by the reciprocal of the RF output power
d) Add the RF input power to the DC output power

Answer: b;

322. Which of the following describes a linear amplifier?

a) Any RF power amplifier used in conjunction with an amateur transceiver
b) An amplifier whose output preserves the input waveform**
c) A Class C high efficiency amplifier
d) An amplifier used as a frequency multiplier

323. What is the name of the process that changes the envelope of an RF wave to convey information?

a) Phase modulation
b) Frequency modulation
c) Spread Spectrum modulation
d) Amplitude modulation

Answer: d;

324. What is the name of the process that changes the phase angle of an RF wave to convey information?

a) Phase convolution
b) Phase modulation
c) Angle convolution
d) Radian Inversion

Answer: b;

325. What is the name of the process which changes the frequency of an RF wave to convey information?

a) Frequency convolution
b) Frequency transformation
c) Frequency conversion
d) Frequency modulation

Answer: d;

326. What emission is produced by a reactance modulator connected to an RF power amplifier?

a) Multiplex modulation
b) Phase modulation
c) Amplitude modulation
d) Pulse modulation

Answer: b;

327. What type of transmission varies the instantaneous power level of the RF signal to convey information?

a) Frequency shift keying
b) Pulse modulation
c) Frequency modulation
d) Amplitude modulation

Answer: d;

328. What is one advantage of carrier suppression in a single-sideband phone transmission?

a) Audio fidelity is improved
b) Greater modulation percentage is obtainable with lower distortion
c) More transmitter power can be put into the remaining sidebands
d) Simpler receiving equipment can be used

Answer: c;

329. Which of the following phone emissions uses the narrowest frequency bandwidth?

a) Single sideband
b) Double sideband
c) Phase modulation
d) Frequency modulation

Answer: a;

330. What happens to the signal of an over-modulated single-sideband phone transmitter?

a) It becomes louder with no other effects
b) It occupies less bandwidth with poor high frequency response
c) It has higher fidelity and improved signal to noise ratio
d) It becomes distorted and occupies more bandwidth

Answer: d;

331. What control is typically adjusted for proper ALC setting on an amateur single sideband transceiver?

a) The RF Clipping Level
b) Audio or microphone gain
c) Antenna inductance or capacitance
d) Attenuator Level

Answer: b;

332. What is meant by flat-topping of a single-sideband phone transmission?

a) Signal distortion caused by insufficient collector current
b) The transmitter's automatic level control is properly adjusted
c) Signal distortion caused by excessive drive
d) The transmitter's carrier is properly suppressed

Answer: c;

333. What happens to the RF carrier signal when a modulating audio signal is applied to an FM transmitter?

a) The carrier frequency changes proportionally to the instantaneous amplitude of the modulating signal
b) The carrier frequency changes proportionally to the amplitude and frequency of the modulating signal
c) The carrier amplitude changes proportionally to the instantaneous frequency of the modulating signal
d) The carrier phase changes proportionally to the instantaneous amplitude of the modulating signal

Answer: a;

334. What is the carrier frequency?

a) The frequency actually traveling to air waves
b) The audio frequency actually traveling to air waves
c) Mixer interference frequency
d) Intermediate interference frequency

Answer: a;

335. Why frequency isn’t modulated (FM) phone used below 29.5 MHz?

a) The transmitter efficiency for this mode is low
b) Harmonics could not be attenuated to practical levels
c) The bandwidth would exceed BTRC limits
d) The frequency stability would not be adequate

Answer: c;

336. What do RTTY, Morse code, PSK31 and packet communications have in common?

a) They require the same bandwidth
b) They are digital modes
c) They use on/off keying
d) They use phase shift modulation

Answer: b;

337. When transmitting a data mode signal, why is it important to know the duty cycle of the mode you are using?

a) To aid in tuning your transmitter
b) To prevent damage to your transmitter's final output stage**

c) To allow time for the other station to break in during a transmission
d) All of these choices are correct

Answer: b;

338. What part of the 20 meter band is most commonly used for PSK31 operation?

a) At the bottom of the slow-scan TV segment, near 14.230 MHz
b) At the top of the SSB phone segment, near 14.325 MHz
c) In the middle of the CW segment, near 14.100 MHz
d) Below the RTTY segment, near 14.070 MHz

Answer: d;

339. What is another term for the mixing of two RF signals?

a) Heterodyning
b) Synthesizing
c) Cancellation
d) Multiplying

Answer: a;

340. Which of the following factors help determine the characteristic impedance of a parallel conductor antenna feedline?

a) The distance between the centers of the conductors and the radius of the conductors
b) The distance between the centers of the conductors and the length of the line
c) The radius of the conductors and the frequency of the signal
d) The frequency of the signal and the length of the line

Answer: a;

341. What is the typical characteristic impedance of coaxial cables used for antenna feedlines at amateur stations?

a) 25 and 30 ohms
b) 50 and 75 ohms
c) 80 and 100 ohms
d) 500 and 750 ohms

Answer: b;

342. What is the characteristic impedance of flat ribbon TV type twin lead?

a) 50 ohms
b) 75 ohms
c) 100 ohms
d) 300 ohms

Answer: d;

343. What is a common reason for the occurrence of reflected power at the point where a feedline connects to an antenna?

a) Operating an antenna at its resonant frequency
b) Using more transmitter power than the antenna can handle
c) A difference between feedline impedance and antenna feed point impedance
d) Feeding the antenna with unbalanced feedline

Answer: c;

344. What must be done to prevent standing waves on an antenna feedline?

a) The antenna feed point must be at DC ground potential
b) The feedline must be cut to an odd number of electrical quarter wavelengths long
c) The feedline must be cut to an even number of physical half wavelengths long
d) The antenna feed point impedance must be matched to the characteristic impedance of the feedline

Answer: d;

345. Which of the following is a reason for using an inductively coupled matching network between the transmitter and parallel conductor feed line feeding an antenna?

a) To increase the radiation resistance
b) To reduce spurious emissions
c) To match the unbalanced transmitter output to the balanced parallel conductor feedline
d) To reduce the feed-point impedance of the antenna

346. How does the attenuation of coaxial cable change as the frequency of the signal it is carrying increases?

a) It is independent of frequency
b) It increases
c) It decreases
d) It reaches a maximum at approximately 18 MHz

Answer: b;

347. In what values are RF feed line losses usually expressed?

a) ohms per 1000 ft
b) dB per 1000 ft
c) ohms per 100 ft
d) dB per 100 ft

Answer: d;

348. What is one disadvantage of a directly fed random-wire antenna?

a) It must be longer than 1 wavelength
b) You may experience RF burns when touching metal objects in your station
c) It produces only vertically polarized radiation
d) It is not effective on the higher HF bands

Answer: b;

349. What is an advantage of downward sloping radials on a ground-plane antenna?

a) They lower the radiation angle
b) They bring the feed-point impedance closer to 300 ohms
c) They increase the radiation angle
d) They can be adjusted to bring the feed-point impedance closer to 50 ohms

Answer: d;

350. What happens to the feed-point impedance of a ground-plane antenna when its radials are changed from horizontal to downward-sloping?

a) It decreases
b) It increases
c) It stays the same
d) It reaches a maximum at an angle of 45 degrees

Answer: b;

351. What is the meaning of BTRC?

a) Bangladesh Telecommunication Regulator Command
b) Bangladesh Telecommunication Regulation Command
c) Bangladesh Telecommunication Regulatory Commission
d) Bangladesh Telecommunication Regulation Commission

Answer: c;

352. Where the radial wires of a ground-mounted vertical antenna system should be placed?

a) As high as possible above the ground
b) Parallel to the antenna element
c) On the surface or buried a few inches below the ground
d) At the top of the antenna

Answer: c;

353. Which of the following is an advantage of a horizontally polarized as compared to vertically polarized HF antenna?

a) Lower ground reflection losses
b) Lower feed-point impedance
c) Shorter Radials
d) Lower radiation resistance

Answer: a;

354. What is the approximate length for a 1/2-wave dipole antenna cut for 14.250 MHz?

a) 8.2 feet
b) 16.4 feet
c) 24.6 feet
d) 32.8 feet

Answer: d;

355. What is the approximate length for a 1/2-wave dipole antenna cut for 3.550 MHz?

a) 42.2 feet
b) 84.5 feet
c) 131.8 feet
d) 263.6 feet

Answer: c;

356. What is the approximate length for a 1/4-wave vertical antenna cut for 28.5 MHz?

a) 8.2 feet
b) 10.5 feet
c) 16.4 feet
d) 21.0 feet

Answer: a;

357. How can the SWR bandwidth of a Yagi antenna be increased?

a) Use larger diameter elements
b) Use closer element spacing
c) Use traps on the elements
d) Use tapered-diameter elements

Answer: a;

358. What is the approximate length of the driven element of a Yagi antenna?

a) 1/4 wavelength
b) 1/2 wavelength
c) 3/4 wavelength
d) 1 wavelength

Answer: b;

359. Which statement about a three-element single-band Yagi antenna is true?

a) The reflector is normally the shortest parasitic element
b) The director is normally the shortest parasitic element
c) The driven element is the longest parasitic element
d) Low feed-point impedance increases bandwidth

Answer: b;

360. 360. Which statement about a Yagi antenna is true?

a) The reflector is normally the longest parasitic element
b) The director is normally the longest parasitic element
c) The reflector is normally the shortest parasitic element
d) All of the elements must be the same length

Answer: a;

361. What is one effect of increasing the boom length and adding directors to a Yagi antenna?

a) Gain increases
b) SWR increases
c) Weight decreases
d) Wind load decreases

Answer: a;

362. Which of the following is a reason why a Yagi antenna is often used for radio communications on the 20 meter band?

a) It provides excellent omni directional coverage in the horizontal plane
b) It is smaller, less expensive and easier to erect than a dipole or vertical antenna
c) It helps reduce interference from other stations to the side or behind the antenna
d) It provides the highest possible angle of radiation for the HF bands

Answer: c;

363. 363. What does "front-to-back ratio" mean in reference to a Yagi antenna?

a) The number of directors versus the number of reflectors
b) The relative position of the driven element with respect to the reflectors and directors
c) The power radiated in the major radiation lobe compared to the power radiated in exactly the opposite direction
d) The ratio of forward gain to dipole gain

Answer: c;

364. What is meant by the "main lobe" of a directive antenna?

a) The magnitude of the maximum vertical angle of radiation
b) The point of maximum current in a radiating antenna element
c) The maximum voltage standing wave point on a radiating element
d) The direction of maximum radiated field strength from the antenna

Answer: d;

365. What is the approximate maximum theoretical forward gain of a 3 Element Yagi antenna?

a) 9.7 dBi
b) 7.3 dBd
c) 5.4 times the gain of a dipole
d) All of these choices are correct

Answer: a;

366. What is the purpose of a "gamma match" used with Yagi antennas?

a) To match the relatively low feed-point impedance to 50 ohms
b) To match the relatively high feed-point impedance to 50 ohms
c) To increase the front to back ratio
d) To increase the main lobe gain

Answer: a;

367. Which of the following describes a common method for insulating the driven element of a Yagi antenna from the metal boom when using a gamma match?

a) Support the driven element with ceramic standoff insulators
b) Insert a high impedance transformer at the driven element
c) Insert a high voltage balun at the driven element
d) None of the above. No insulation in needed

Answer: d;

368. Approximately how long is each side of a cubical-quad antenna driven element?

a) 1/4 wavelength
b) 1/2 wavelength
c) 3/4 wavelength
d) 1 wavelength

Answer: a;

369. Approximately how long is each leg of a symmetrical delta-loop antenna Driven element?

a) 1/4 wavelength
b) 1/3 wavelengths
c) 1/2 wavelengths
d) 2/3 wavelengths

Answer: b;

370. Which of the following antenna types is consists of a driven element and some combination of parasitically excited reflector and/or director elements?

a) A collinear array
b) A rhombic antenna
c) A double-extended Zepp antenna
d) A Yagi antenna

Answer: d;

371. What type of directional antenna is typically constructed from 2 square loops of wire each having a circumference of approximately one wavelength at the operating frequency and separated by approximately 0.2 wavelength?

a) A stacked dipole array
b) A collinear array
c) A cubical quad antenna
d) An Adcock array

Answer: c;

372. What happens when the feed-point of a cubical quad antenna is changed from the center of the lowest horizontal wire to the center of one of the vertical wires?

a) The polarization of the radiated signal changes from horizontal to vertical
b) The polarization of the radiated signal changes from vertical to horizontal
c) The direction of the main lobe is reversed

d) The radiated signal changes to an omnidirectional pattern

Answer: a;

373. What configuration of the loops of a cubical-quad antenna must be used for the antenna to operate as a beam antenna assuming one of the elements is used as a reflector?

a) The driven element must be fed with a balun transformer
b) The driven element must be open-circuited on the side opposite the feed-point
c) The reflector element must be approximately 5% shorter than the driven element
d) The reflector element must be approximately 5% longer than the driven element

Answer: d;

374. What does the term "NVIS" mean as related to antennas?

a) Nearly Vertical Inductance System
b) Non-Visible Installation Specification
c) Non-Varying Impedance Smoothing
d) Near Vertical Incidence Skywave

Answer: d;

375. Which of the following is an advantage of an NVIS antenna?

a) Low vertical angle radiation for DX work
b) High vertical angle radiation for short skip during the day
c) High forward gain
d) All of these choices are correct

Answer: b;

376. At what height above ground is an NVIS antenna typically installed?

a) As close to one-half wave as possible
b) As close to one wavelength as possible
c) Height is not critical as long as significantly more than 1/2 wavelength
d) Between 1/10 and 1/4 wavelength

Answer: d;

377. How does the gain of two 3-element horizontally polarized Yagi antennas spaced vertically 1/2 wave apart from each another typically compare to the gain of a single 3-element Yagi?

a) Approximately 1.5 dB higher
b) Approximately 3 dB higher
c) Approximately 6 dB higher
d) Approximately 9 dB higher

Answer: c;

378. What is the advantage of vertical stacking of horizontally polarized Yagi antennas?

a) Allows quick selection of vertical or horizontal polarization
b) Allows simultaneous vertical and horizontal polarization

c) Narrows the main lobe in azimuth
d) Narrows the main lobe in elevation

Answer: d;

379. Which of the following is an advantage of a log periodic antenna?

a) Wide bandwidth
b) Higher gain per element than a Yagi antenna
c) Harmonic suppression
d) Polarization diversity

Answer: a;

380. Which of the following describes a log periodic antenna?

a) Length and spacing of element increases logarithmically from one end of the boom to the other
b) Impedance varies periodically as a function of frequency
c) Gain varies logarithmically as a function of frequency
d) SWR varies periodically as a function of boom length

Answer: a;

381. Why is a Beverage antenna generally not used for transmitting?

a) It's impedance is too low for effective matching
b) It has high losses compared to other types of antennas
c) It has poor directivity
d) All of these choices are correct

Answer: b;

382. Which of the following is an application for a Beverage antenna?

a) Directional transmitting for low HF bands
b) Directional receiving for low HF bands
c) Portable Direction finding at higher HF frequencies
d) Portable Direction finding at lower HF frequencies

Answer: b;

383. Which of the following describes a Beverage antenna?

a) A vertical antenna constructed from beverage cans
b) A broad-band mobile antenna
c) A helical antenna for space reception
d) A very long and low receiving antenna that is highly directional

Answer: d;

384. Which of the following is a disadvantage of multiband antennas?

a) They present low impedance on all design frequencies
b) They must be used with an antenna tuner
c) They must be fed with open wire line
d) They have poor harmonic rejection

Answer: d;

385. What is the primary purpose of traps installed in antennas?

a) To permit multiband operation
b) To notch spurious frequencies
c) To provide balanced feed-point impedance
d) To prevent out of band operation

Answer: a;

386. What is one way that RF energy can affect human body tissue?

a) It heats body tissue
b) It causes radiation poisoning
c) It causes the blood count to reach a dangerously low level
d) It cools body tissue

Answer: a;

387. Which of the following has the most direct effect on the permitted exposure level of RF radiation?

a) The age of the person exposed
b) The power level and frequency of the energy
c) The environment near the transmitter
d) The type of transmission line used

Answer: b;

388. What does "time averaging" mean in reference to RF radiation exposure?

a) The average time of day when the exposure occurs
b) The average time it takes RF radiation to have any long-term effect on the body
c) The total time of the exposure
d) d. The total RF exposure averaged over a certain time

Answer: d;

389. What must you do if an evaluation of your station shows RF energy radiated from your station exceeds permissible limits?

a) Take action to prevent human exposure to the excessive RF fields
b) File an Environmental Impact Statement (EIS-97) with the BTRC
c) Secure written permission from your neighbors to operate above the controlled MPE limits
d) All of these answers are correct

Answer: a;

390. Which transmitter(s) at a multiple user site is/are responsible for RF safety compliance?

a) Only the most powerful transmitter on site
b) All transmitters on site, regardless of their power level or duty cycle
c) Any transmitter that contributes 5% or more of the MPE
d) Only those that operate at more than 50% duty cycle

Answer: c;

391. Which of the following steps must an amateur operator take to ensure compliance with RF safety regulations?

a) Post a copy of BTRC Part 97 in the station
b) Post a copy of OET Bulletin 65 in the station
c) Perform a routine RF exposure evaluation
d) All of these choices are correct

Answer: c;

392. What type of instrument can be used to accurately measure an RF field?

a) A receiver with an S meter
b) A calibrated field-strength meter with a calibrated antenna
c) A beta scope with a dummy antenna calibrated at 50 ohms
d) An oscilloscope with a high-stability crystal marker generator

Answer: b;

393. What do the RF safety rules require when the maximum power output capability of an otherwise compliant station is reduced?

a) Filing of the changes with the BTRC
b) Recording of the power level changes in the log or station records
c) Performance of a routine RF exposure evaluation
d) No further action is required

Answer: d;

394. What precaution should you take if you install an indoor transmitting antenna?

a) Locate the antenna close to your operating position to minimize feed line radiation
b) Position the antenna along the edge of a wall to reduce parasitic radiation
c) Make sure that MPE limits are not exceeded in occupied areas
d) No special precautions are necessary if SSB and CW are the only modes used

Answer: c;

395. What precaution should you take whenever you make adjustments or repairs to an antenna?

a) Ensure that you and the antenna structure are grounded
b) Turn off the transmitter and disconnect the feedline
c) Wear a radiation badge
d) All of these answers are correct

Answer: y;

396. What precaution should be taken when installing a ground-mounted antenna?

a) It should not be installed higher than you can reach
b) It should not be installed in a wet area
c) It should be painted so people or animals do not accidentally run into it
d) It should be installed so no one can be exposed to RF radiation in excess of maximum permissible limits**

Answer: d;

397. What is one thing that can be done if evaluation shows that a neighbor might receive more than the allowable limit of RF exposure from the main lobe of a directional antenna?

a) Change from horizontal polarization to vertical polarization
b) Change from horizontal polarization to circular polarization
c) Use an antenna with a higher front-to-back ratio
d) Take precautions to ensure that the antenna cannot be pointed at their house

Answer: d;

398. Which wire(s) in a four-conductor line cord should be attached to fuses or circuit breakers in a device operated from a 240-VAC single-phase source?

a) Only the "hot" (black and red) wires
b) Only the "neutral" (white) wire
c) Only the ground (bare) wire
d) All wires

Answer: a;

399. What is the minimum wire size that may be safely used for a circuit that draws up to 20 amperes of continuous current?

a) AWG number 20
b) AWG number 16
c) AWG number 12
d) AWG number 8

Answer: c;

400. Which size of fuse or circuit breaker would be appropriate to use with a circuit that uses AWG number 14 wiring?

a) 100 amperes
b) 60 amperes
c) 30 amperes
d) 15 amperes

Answer: d;

401. What is the mechanism by which electrical shock can be lethal?

a) Current through the heart can cause the heart to stop pumping
b) A large voltage field can induce currents in the brain

c) Heating effects in major organs can cause organ failure
d) All of these choices are correct

Answer: a;

402. Which of the following conditions will cause a Ground Fault Circuit Interrupter (GFCI) to disconnect the 120 or 240 Volt AC line power to a device?

a) Current flowing from the hot wire to the neutral wire
b) Current flowing from the hot wire to ground**
c) Over-voltage on the hot wire
d) All of these choices are correct

Answer: b;

403. Why must the metal chassis of every item of station equipment be grounded (assuming the item has such a chassis)?

a) It prevents blowing of fuses in case of an internal short circuit
b) It provides a ground reference for the internal circuitry
c) It ensures that the neutral wire is grounded
d) It ensures that hazardous voltages cannot appear on the chassis

Answer: d;

404. Which of the following should be observed for safety when climbing on a tower using a safety belt or harness?

a) Never lean back and rely on the belt alone to support your weight
b) Always attach the belt safety hook to the belt "D" ring with the hook opening away from the tower**
c) Ensure that all heavy tools are securely fastened to the belt D ring
d) Make sure that your belt is grounded at all times

Answer: c;

405. What should be done by any person preparing to climb a tower that supports electrically powered devices?

a) Notify the electric company that a person will be working on the tower
b) Make sure all circuits that supply power to the tower are locked out and tagged
c) Ground the base of the tower
d) d. Disconnect the feed-line for every antenna at the station

Answer: c;

406. Why is it not safe to use soldered joints with the wires that connect the base of a tower to a system of ground rods?

a) a. The resistance of solder is too high
b) Solder flux will prevent a low conductivity connection
c) Solder has too high a dielectric constant to provide adequate lightning protection
d) A soldered joint will likely be destroyed by the heat of a lightning strike

Answer: d;

407. Which of the following is a danger from lead-tin solder?

a) Lead can contaminate food if hands are not washed carefully after handling
b) High voltages can cause lead-tin solder to disintegrate suddenly
c) Tin in the solder can "cold flow" causing shorts in the circuit
d) RF energy can convert the lead into a poisonous gas

Answer: a;

408. Which of the following is good engineering practice for lightning protection grounds?

a) They must be bonded to all buried water and gas lines
b) Bends in ground wires must be made as close as possible to a right angle
c) Lightning grounds must be connected to all ungrounded wiring
d) They must be bonded together with all other grounds

Answer: d;

409. What is the purpose of a transmitter power supply interlock?

a) To prevent unauthorized access to a transmitter
b) To guarantee that you cannot accidentally transmit out of band
c) To ensure that dangerous voltages are removed if the cabinet is opened
d) To shut off the transmitter if too much current is drawn

Answer: c;

410. 410. Which of the following is the most hazardous type of electrical energy?

a) Direct Current
b) 50 cycle Alternating current
c) Radio Frequency
d) All of these choices are correct

Answer: b;

411. An amateur radio station may be used to:

a) Pass on messages on behalf of third parties
b) Draw attention to the station using sound effects
c) Book hotel accommodation for the licensee
d) Communicate with other amateurs, but restricted to remarks of a personal nature or reports on Radio experiments

Answer: d;

412. A station that is intended to be operated while it is in motion or while it is stationary at an unspecified place is called

a) A removable radio station
b) An amateur radio station
c) A mobile station

d) A portable station

Answer: c;

413. Define Input Power

a) The average input power supplied to the transmitter
b) The input power supplied to the amplifier of a transmitter
c) The direct current input (dc input) to the final stage of the radio frequency stage that immediately precedes the
d) Antenna
e) The input supplied directly to the antenna transmission line by the transmitter

Answer: c;

414. Define Amateur Radio Station:

a) A station that uses radio waves for experimental purposes and which is operated by a radio amateur
b) A station of self tuition that is operated by an amateur for use from a public vehicle or an aircraft
c) A station for a service of self tuition, intercommunication and technical investigation that is operated by a radio amateur
d) A station that is operated solely for the pleasure and entertainment of a radio amateur

Answer: c;

415. An Amateur Radio Station may only be operated by:

a) A person who is possession of a Certificate of Competency issued by BTRC
b) A person who is in possession of a Broadcasting License issued in terms of the Radio Act
c) A person who is the holder of an amateur radio station license issued by BTRC
d) A person who is possession of a license issued by the Post Office

Answer: c;

416. 416. May a licensed radio amateur operate another amateur radio station if:

a) The licensee of the amateur radio station is overseas?
b) The Licensee of the amateur radio station does not give his permission for such operation?
c) Licensee gives the necessary permission to do so?
d) The licensee is away for short periods only?

Answer: c;

417. An amateur radio station may only be used to communicate with:

a) Another radio station
b) Another broadcasting station
c) Another amateur radio station
d) An illegal radio station

Answer: c;

418. Under what circumstances may an amateur radio station transmit traffic to any other station?

a) Transmit messages on behalf of a sick person
b) Transmit messages on behalf of a third person
c) Transmit emergency messages to save a life
d) Transmit messages for an overseas friend

Answer: c;

419. Amateur radio stations may communicate by means of:

a) The international 10 10 Code
b) Using their own radio codes
c) The K Code
d) Plain language and the international Q code

Answer: d;

420. An amateur radio station may transmit messages:

a) For services for reward
b) For another radio station
c) For a non emergency service
d) For calling an ambulance to the scene of an accident to save life

Answer: d;

421. Amateur radio stations do not have to keep a log book:

a) For 20m transmissions
b) For 10m transmissions
c) For 144 MHz or 430 MHz transmissions
d) For 80m transmissions

Answer: c;

422. What are the upper and lower frequencies in the 20m amateur band?

a) 14450-14150 kHz
b) 14000-14350 kHz
c) 14350-14250 kHz
d) 14300-14000 kHz

Answer: b;

423. What are the lower and upper frequencies in the 40m Amateur band?

a) 7000-7350 kHz
b) 7000-7150 kHz
c) 7000-7100 kHz
d) 14000-14350 kHz

Answer: c;

424. What are the lower and upper frequencies in the 2m amateur band?

a) 145000-145995 kHz
b) 142000-146000 kHz
c) 144000-145000 kHz
d) 144000-146000 kHz

Answer: d;

425. What are the lower and upper frequencies in the 80m amateur band?

a) 3000-3800 kHz
b) 3500-3600 kHz
c) 3500-3800 kHz
d) 3400-3700 kHz

Answer: c;

426. What are the lower and upper frequencies of the 15m amateur band?

a) 21.100-21.350 MHz
b) 21.000-21.350 MHz
c) 21.350-21.450 MHz
d) 21.000-21.450 MHz

Answer: d;

427. The frequency of 21.250 is in the radio amateur:

a) 21 meter band
b) 15 meter band
c) 40 meter band
d) 30 meter band

Answer: b;

428. The bandwidth used in amateur radio transmissions:

a) Must not exceed the maximum laid down
b) Must be kept as broad as possible
c) Must be kept to a minimum at all times
d) Must not exceed 5 MHz

Answer: c;

429. The power supply to transmitting equipment shall:

a) Have an adequately filtered AC system
b) Have an unfiltered DC system
c) Have an adequately filtered DC system
d) Have a well filtered AC/DC power supply

Answer: c;

430. The antenna and the transmitter shall be coupled so:

a) As to allow full direct power supply potential to the antenna
b) In such a manner so as to endanger life
c) As not to endanger life through full direct potential to any body
d) That no direct potential at power supply voltage, dangerous to life, exists on the antenna

Answer: d;

431. How often must the call sign of an amateur radio station be given?

a) At least once every fifteen minutes
b) At least once during each separate transmission
c) At least once every five minutes
d) At the beginning and end of every transmission

Answer: b;

432. What kinds of language may not be used over the radio transmissions?

a) Plain language and the international Q Code
b) Blasphemous, Insulting, improper, obscene or threatening
c) Plain language
d) Plain language in Morse Code

Answer: b;

433. In RST signal reporting, what does R4 stand for?

a) Unreadable
b) Readable with practically no difficulty
c) Perfectly readable
d) Barely readable, occasional words distinguishable

Answer: b;

434. In RST signal reporting, what does S6 stand for?

a) Good signals
b) Strong signals
c) Very weak signals
d) Moderately strong signals

Answer: d;

435. The term CQ is used to:

a) Call for a contact with another amateur station
b) Terminate a conversation
c) Interrupt a conversation
d) Make a test transmission

Answer: a;

436. Prior to transmitting a licensed operator should always:

a) Check earthing
b) Check antennas
c) Check power supplies
d) Listen to check whether the frequency is clear

Answer: d;

437. To ensure the calling stations call sign is clearly identified when inviting a contact, the caller should :

a) a. Repeat his call sign several times
b) Speak very quickly
c) Use maximum speech compression
d) Use the highest frequency

Answer: a;

438. A signal report of 5 9 9 is given when a received signal has:

a) A poor signal strength with a good CW tone
b) A good signal strength but a poor CW tone
c) Totally unreadable CW
d) A perfectly readable, strong and clear tone signal

Answer: d;

439. 439. In the RST code the T is for:

a) Temperature
b) Tone
c) Time of transmission
d) Transmitter type

Answer: b;

440. The S report in the RST code is obtained from:

a) The power level of the transmitted signal
b) The speed at which CW is sent
c) The level of interference on the band
d) The indication on the receivers S meter reading

Answer: d;

441. A 59 report is commonly given to stations who:

a) Generate poorly readable signals
b) Are unreadable
c) Put in good strong well understood signals
d) Send poor CW

Answer: d;

442. The term "5 and 9" used to describe a signal, is in which code?

a) Q code

b) RST code
c) Morse code
d) Color code

Answer: b;

443. Identify the correct Q code for "your signals are fading"

a) QSL
b) QRN
c) QSB
d) QRO

Answer: c;

444. Identify the correct Q code for "are you being interfered with?"

a) QRN
b) QSL
c) QRM
d) QRX

Answer: c;

445. Identify the correct meaning of QTH

a) The home address of a mobile station
b) position of the other station
c) The position of a repeater
d) The actual position of a station

Answer: d;

446. Identify the correct Q code for "Send slower"

a) QSP
b) QRS
c) QRO
d) QRQ

Answer: b;

447. The Q code for "standby" is:

a) QRN
b) QRM
c) QRS
d) QRX

Answer: d;

448. QRP means:

a) Close down
b) Address is

c) High Power
d) Low Power

Answer: d;

449. 449. QRT means:

a) Close down
b) Stand By
c) Fading
d) Low Power

Answer: a;

450. Will you tell me my exact frequency may be transmitted as:

a) QSL
b) QRG
c) QRI
d) QRU

Answer: b;

451. The use of the Q code is primarily to:

a) Stop unlicensed users understanding transmissions
b) Save transmitting power
c) Ensure effective communication
d) Utilize sidebands

Answer: c;

452. The correct Q Code for "change frequency to" is:

a) QSR
b) QSX
c) QSY
d) QTH

Answer: c;

453. What is the correct Q Code for "what is your location?"

a) QSY
b) QSP
c) QRP
d) QTH

Answer: d;

454. QRM could relate to:

a) I am inundated with static
b) I am being interfered with by another station**
c) I am going to do a musical transmission

d) I need more modulation

Answer: b;

455. QRT is defined as:

a) I am going to send now
b) I am going to stand by
c) I intend ending this transmission**
d) Are you going to send now?

Answer: c;

456. Which is the correct Q Code for "shall I stop sending?"

a) QRL
b) QRK
c) QRV
d) QRT

Answer: d;

457. Which is the correct Q Code for "when will you call me again?"

a) QSD
b) QSB
c) QRX
d) QRH

Answer: c;

458. Which the correct Q Code is for "are my signals fading?"

a) QSD
b) QSB
c) QRN
d) QRH

Answer: b;

459. Which the correct Q-code is for "Are you ready?"

a) QRL
b) QRK
c) QRV
d) QRG

Answer: c;

460. Which is the correct Q Code for "can you acknowledge receipt?"

a) QRL
b) QRK
c) QRV
d) QSL

Answer: d;

461. Which is the correct phonetic spelling of the word PLUG?

a) Peter Lima Union Golf
b) Papa Lima Uniform Golf
c) Pope Lima Uniform Golf
d) Power Lima Uniform Golf

Answer: b;

462. Which of the following is incorrect usage of the phonetic alphabet?

a) Bravo
b) Sierra
c) America
d) India

Answer: c;

463. Which of the following is the correct phonetic spelling for the word SHIP?

a) Sugar Hotel Item Papa
b) Santiago Honolulu India Papa
c) South Hotel India Papa
d) Sierra Hotel India Papa

Answer: d;

464. Call signs using phonetics can be given:

a) On every transmission
b) On the first contact with a station
c) At the end of each transmission
d) Regularly

Answer: b;

465. COIL, using the international phonetic alphabet, would be announced as:

a) Charlie, Ocean, Italy, Lima
b) Charlie, Oscar, India, Lima
c) Colin, Oscar, Indonesia, London
d) Colin, Oscar, India, London

Answer: b;

466. Which of the following uses the International Phonetic Alphabet?

a) Boston, Uniform, Golf
b) Bravo, Union, Gold
c) Berlin, Uncle, Golf
d) Bravo, Uniform, Golf

Answer: d;

467. Repeaters only normally operate on which mode:

a) AM
b) FM
c) SSB
d) CW

Answer: b;

468. A net is taking place on 2m. Should you:

a) Call CQ on that frequency during a break in transmissions
b) Listen for a while and then butt in even if you cannot contribute to the discussion
c) Wait for a break in transmission, then call in and wait to be called in
d) Whistle or use a musical instrument to attract attention

Answer: c;

469. Where the green wire in an ac line cord should be attached in a power supply?

a) To the fuse
b) To the "hot" side of the power switch
c) To the chassis
d) To the meter

Answer: c;

470. What safety feature is provided by a bleeder resistor in a power supply?

a) It improves voltage regulation
b) It discharges the filter capacitors
c) It removes shock hazards from the induction coils
d) It eliminates ground loop current

Answer: b;

471. The purpose of a terrestrial repeater is to:

a) Increase satellite coverage
b) Increase the range of mobile stations
c) Increase the range of fixed stations
d) Minimize contacts by pedestrian stations

Answer: b;

472. 472. When signing off with another station it is accepted practice at the end of the contact to:

a) Give your call sign first and then the other station
b) 'Give the other stations' call sign after your call sign at the end
c) 'Don't use the other stations call sign or yours but say over and out
d) 'Give the other stations' call sign first and your call sign last

Answer: d;

473. The RST Code translates to:

a) Readability, Signal strength, Tone
b) Radio, Signal, Time
c) Readability, Signal strength, Time
d) Reactivity, Speed, Tone

Answer: a;

474. When calling another station how often should the call sign of the station being called be given?

a) Five times
b) Three times
c) Two times
d) Four times

Answer: b;

475. When using a repeater on VHF it is good practice to:

a) Use simplex and tell the other stations they are weak and you don't hear them at all
b) Use maximum power and call until someone answers
c) Use the duplex mode, and call on the input frequency and listen on the output frequency
d) Use repeater reverse and hope for the best

Answer: c;

476. When using a repeater you should give:

a) A signal strength reports to other stations
b) Request a RST signal report on your signal
c) Give RST signal reports to other stations
d) Report that you are copying loud and clear

Answer: d;

477. It is good practice when using a repeater:
a) To use an inefficient antenna
b) To use a faulty microphone
c) To use a radio set that over deviates
d) To be polite and allow other stations to join into the conversation

Answer: d;

478. When using a repeater one should always:

a) Keep the over as longs as you feel like
b) Discuss subjects including politics, sex and religion
c) Keep the over short so as to allow other users access
d) Access the repeater without giving your call sign

Answer: c;

479. When operating on any Amateur Radio band one should:

a) Operate wherever is convenient and unoccupied
b) Use Lower Sideband in the Upper Sideband portion
c) Follow the accepted Band Plan for the band being used
d) Use CW in the phone portion if the band is clear

Answer: c;

480. One of the following is not a conductor:

a) Silver
b) Aluminum
c) Copper
d) Mica

Answer: d;

481. One of the following is not an insulator:

a) Mica
b) Ceramic
c) Plastic
d) Copper

Answer: d;

482. The opposition to the flow of current in a circuit is called:

a) Resistance
b) Inductance
c) Emission
d) Capacitance

Answer: a;

483. A potentiometer is a:

a) Meter
b) Variable resistor
c) Battery
d) Capacitor

Answer: b;

484. The current through a 100 ohm resistor is to 120ma. What is the potential difference across the resistor?

a) 120 volt
b) 8,33 volt
c) 83,33 volt
d) 12 volt

Answer: d;

485. The resistance value of 1200 ohms can be expressed as:

a) 12 kilo ohms
b) 1.2 kilo ohms
c) 1.2 Mega ohms
d) 0.12 Mega ohms

Answer: b;

486. How can the current be calculated when the voltage and resistance in a dc circuit is known?

a) I = E / R
b) P = I x E
c) I = R x E
d) I = E x R

Answer: a;

487. A 12 volt battery supplies a current of 0.25 ampere to a load. What is the input resistance of this load?

a) 0.02 ohm
b) 3 ohm
c) 48 ohm
d) 480 ohm

Answer: c;

488. If 120 volt is measured across a 470 ohm resistor, approximately how much current is flowing through this resistor?

a) 56.40 ampere
b) 5.64 ampere
c) 3.92 ampere
d) 0.25 ampere

Answer: d;

489. How can you determine a carbon resistor's electrical tolerance rating?

a) By using a wave meter
b) By using the resistor's color code
c) By using Thevenin's theorem for resistors
d) By using the Baudot code

Answer: b;

490. What causes resistors in an electrical circuit to increase in temperature?

a) Power Dissipation
b) Stray lead inductance
c) The Siemens factor
d) Kirchoff's law

Answer: a;

491. Two resistors are connected in series. The combined resistance is 1200 ohm. If one of the resistors is 800 ohm, what is the value of the other?

a) 1000 ohm
b) 800 ohm
c) 400 ohm
d) 1200 ohm

Answer: c;

492. Two 10 kilo ohm resistors are connected in parallel. If the voltage from a battery across the resistors sets up a current of 5mA in the one resistor, how much current flows in the second?

a) 10 ma
b) 2 ma
c) 20 ma
d) 5 ma

Answer: d;

493. Which of the resistors below (each identified by its color coding) would be nearest in value to a 4.7K resistor?

a) Orange violet orange
b) Yellow green red
c) Orange violet red
d) Yellow green orange

Answer: b;

494. A light bulb draws 0.5 A from a 12 V battery when lit. How much power does it consume?

a) 3 W
b) 6 W
c) 0,03 W
d) 24 W

Answer: b;

495. The DC current drawn by the final stage of a linear amplifier is 100 mA at 100 V. How much power is consumed?

a) 100 watt
b) 1 kilo watt
c) 10 watt
d) 1 watt

Answer: c;

496. As what is the value of an AC waveform, representing the equivalent heating effect to a DC voltage, known as?

a) RMS value
b) Average value
c) Peak value

d) Corrected value

Answer: a;

497. Two 500 pF capacitors in series produce an equivalent capacitance of:

a) 1000 pF
b) 2000 pF
c) 250 pF
d) 1 nF

Answer: c;

498. Three capacitors of 1 mF are connected in parallel. The equivalent capacitance is:

a) 0.33 mF
b) 3.0 mF
c) 0.3 mF
d) 33.33 mF

Answer: b;

499. A capacitor of 250 pF is required to resonate a tuned circuit. A 100 pF capacitor is connected in parallel to a variable capacitor. What value must the variable capacitor be set to achieve resonance?

a) 150 pF
b) 300 pF
c) 350 pF
d) 400 pF

Answer: a;

500. A value of 1000pF is equal to:

a) 10nF
b) 1nF
c) 0.1nF
d) 100nF

Answer: b;

501. What is an Amateur Station?

a) A licensed radio station engaged in broadcasting to the public in a limited as well as defined area
b) A radio station used to further commercial radio interests
c) A private radio service used for personal gain and public service
d) A station in the amateur service consisting of the apparatus necessary for carrying on radio communications.

Answer: d;

502. An Amateur Radio Station is:

a) A station that uses radio waves for experimental purposes and which is operated by a radio amateur
b) A station that is operated by an amateur for public service
c) A station for a service of self- training, intercommunication and technical investigation operated by a radio amateur
d) A station that is operated solely for the pleasure and entertainment of a radio amateur

Answer: c;

503. The initial period for an amateur radio license issued by BTRC is:

a) one year
b) six months
c) three years
d) in perpetuity

Answer: c;

504. If the license is revoked it shall be

a) returned to any Post Office
b) returned to the BTRC
c) just destroyed
d) returned to the BTCL

Answer: b;

505. What do the initials "ITU" stand for?

a) Intercontinental Telecommunications Union
b) International Telephony Union
c) International Transmission Union
d) International Telecommunications Union

Answer: d;

506. BTRC is the abbreviation of:

a) Bangladesh Telecom Regulator's Council
b) Bangladesh Telecommunication and Radio Commission
c) Bangladesh Telecommunication Regulatory Commission
d) Bangladesh Telecommunication Regulation Commission

Answer: c;

507. If the BTRC rules do not specifically cover a situation, how must you operate your amateur station?

a) In accordance with general licensee operator principles
b) In accordance with good engineering and good amateur practice
c) In accordance with practices adopted by the IEEE
d) In accordance with procedures set forth by the IARU

Answer: b;

508. What frequency should be used to send a distress call?

a) Whatever frequency has the best chance of communicating the distressmessage
b) Only frequencies authorized for RACES or ARES stations
c) Only frequencies that are within your operating privileges
d) Only frequencies used by police, fire or emergency medical services

Answer: a;

509. As well as amateur frequency transmissions, the license allows receptionof:

a) Diplomatic message
b) Standard frequency transmission
c) News agency transmissions
d) Police transmissions

Answer: b;

510. Under what limited circumstances may music be transmitted by an amateur station?

a) When it produces no dissonances or spurious emissions
b) When it is used to jam an illegal transmission
c) When it is transmitted on frequencies above 1215 MHz
d) When it is an incidental part of a space shuttle retransmission

Answer: d;

511. Why should amateurs keep a log even though the authority doesn't require it?

a) The ITU requires a log of all international contacts
b) The IARU requires a log of all international third party traffic
c) The log provides evidence of operation needed to renew a license without retest
d) To help with a reply if contact information is required later on

Answer: d;

512. What information is traditionally contained in a station log?

a) Date and time of contact
b) Band and/or frequency of the contact
c) Call sign of station contacted and the signal report given
d) All of these choices are correct

Answer: d;

513. When is an amateur station allowed to use any means at its disposal toassist another station in distress?

a) Only when transmitting in Bangladesh
b) At any time when transmitting in an organized net
c) At any time during an actual emergency
d) Only on authorized HF frequencies

Answer: c;

514. Which of the following statements is true of the single sideband (SSB) voice mode?

a) Only one sideband and the carrier are transmitted; the other sideband is suppressed
b) Only one sideband is transmitted; the other sideband and carrier are suppressed
c) SSB voice transmissions have higher average power than any other mode
d) SSB is the only mode that is authorized on the 160, 75 and 40 meteramateur bands

Answer: b;

515. When using voice transmissions, it is wise to

a) use jargon continuously
b) use plain language
c) do everything in Q codes
d) speak as fast as possible

Answer: b;

516. What kind of amateur station simultaneously retransmits the signals of other stations on a different channel?

a) Repeater station
b) Space station
c) Telecommand station
d) Relay station

Answer: a;

517. Which sideband is most commonly used for voice communications on frequencies of 14 MHz or higher?

a) Upper sideband
b) Lower sideband
c) Vestigial sideband
d) Double sideband

Answer: a;

518. Which mode is most commonly used for voice communications on the 17 and 12 meter bands?

a) Upper sideband
b) Lower sideband
c) Vestigial sideband
d) Double sideband

Answer: a;

519. Which of the following modes is most commonly used for voice communications on the 160, 75 and 40 meter bands?

a) Upper sideband

b) Lower sideband
c) Vestigial sideband
d) Double sideband

Answer: b;

520. What emission type describe frequency modulated voice transmissions?

a) CW
b) Image
c) FM phone
d) Single-side band phone

Answer: c;

521. What does an S meter measure?

a) Conductance
b) Impedance
c) Received signal strength
d) Transmitter power output

Answer: c;

522. During periods of low solar activity, which frequencies are the least reliable for long-distance communication?

a) Frequencies below 3.5 MHz
b) Frequencies near 3.5 MHz
c) Frequencies on or above 10 MHz
d) Frequencies above 20 MHz

Answer: d;

523. What is the primary purpose of antenna traps?

a) To permit multiband operation
b) To notch spurious frequencies
c) To provide balanced feed-point impedance
d) To prevent out of band operation

Answer: a;

524. How can the SWR bandwidth of a parasitic beam antenna be increased?

a) Larger diameter elements
b) Closer element spacing
c) Loading coils in series with the element
d) Tapered-diameter elements

Answer: a;

525. What usually happens to radio waves with frequencies below the Lowest Usable Frequency (LUF)?

a) They are bent back to the Earth
b) They pass through the ionosphere
c) They are completely absorbed by the ionosphere
d) They are bent and trapped in the ionosphere to circle the Earth

Answer: c;

526. What is the meaning of the code QRX

a) Interference from other station
b) High electrical noise
c) Please stand by
d) Please change frequency

Answer: c;

527. Meaning of signal "QTH" is

a) time here is
b) my name is
c) stop sending
d) my location is

Answer: d;

528. Meaning of signal "QRM" is

a) Please stand by
b) Interference from other station
c) Please change frequency
d) Closing transmission

Answer: b;

529. Which of the following is a recommended way to break into a conversation when using phone?

a) Say "QRZ" several times followed by your call sign
b) Say your call sign during a break between transmissions from the other stations
c) Say "Break. Break. Break." and wait for a response
d) Say "CQ" followed by the call sign of either station

Answer: b;

530. The abbreviation using the Q code for high power is:

a) QRP
b) QRH
c) QRI
d) QRO

Answer: d;

531. You are having trouble with reception due to interference from another station. The Q code to be used would be:

a) QRM
b) QRH
c) QRI
d) QRO

Answer: a;

532. What does the Q signal “QRV” mean?

a) You are sending too fast
b) There is interference on the frequency
c) I am quitting for the day
d) I am ready to receive messages

Answer: d;

533. The use of the Q code is primarily to:

a) Stop unlicensed users understanding transmissions
b) Save transmitting power
c) Ensure effective communication
d) Utilize sidebands

Answer: c;

534. The correct Q Code for "change frequency to" is:

a) QSR
b) QSX
c) QSY
d) QTH

Answer: c;

535. How the call sign "S21AH" may be stated phonetically?

a) Santiago Two One Apple Hotel
b) Sierra Two One Alpha Hotel
c) Santiago Tango One Alpha Honolulu
d) Sugar Two One Alpha Hotel

Answer: b;

536. Which of the following uses the International Phonetic Alphabet?

a) Boston, Uniform, Golf
b) Bravo, Union, Gold
c) Berlin, Uncle, Golf
d) Bravo, Uniform, Golf

Answer: d;

537. In the RST code “R” is for

a) Radio

b) Readability
c) Rare Station
d) a type of emission

Answer: b;

538. In RST signal reporting, what does R4 stand for?

a) Unreadable
b) Readable with practically no difficulty
c) Perfectly readable
d) Barely readable, occasional words distinguishable

Answer: b;

539. Having established contact on a calling frequency it is good practice to:

a) stay on the same frequency
b) move to another frequency
c) invite others to join in on the same frequency
d) be objectionable to all others calling

Answer: a;

540. What is the customary minimum frequency separation between SSB signals under normal conditions?

a) Between 150 and 500 Hz
b) Approximately 3 kHz
c) Approximately 6 kHz
d) Approximately 10 kHz

Answer: b;

541. The frequency limits of the UHF spectrum are

a) 300 to 3000 MHz
b) 30 to 100 MHz
c) 100 to 3000 MHz
d) 3 to 300 MHz

Answer: a;

542. Which of the following frequencies is in the 12 meter band?

a) 14.100 MHz
b) 12.940 MHz
c) 17.940 MHz
d) 24.940 MHz

Answer: d;

543. Which, if any, amateur band is shared with the Citizens Radio Service?

a) 10 meters

b) 12 meters
c) 15 meters
d) None

Answer: d;

544. What is the frequency corresponding to a wavelength of 300 mm in vacuam

a) 100 kHz
b) 1 MHz
c) 100 MHz
d) 1 GHz

Answer: d;

545. The approximate amount of change, measured in decibels (dB), of a power decrease from 12 watts to 3 watts

a) is 0 dB
b) is 6 dB
c) is 12 dB
d) is 3 dB

Answer: b;

546. What is the maximum symbol rate permitted for RTTY or data transmission on 20 meter band?

a) 56 kilobaud
b) 19.6 kilobaud
c) 1200 baud
d) 300 baud

Answer: d;

547. What two devices in an Amateur Radio station might be connected using a USB interface?

a) Computer and transceiver
b) Microphone and transceiver
c) Amplifier and antenna
d) Power supply and amplifier

Answer: a;

548. What is the most common frequency shift for RTTY emissions in the amateur HF bands?

a) 85 Hz
b) 170 Hz
c) 425 Hz
d) 850 Hz

Answer: b;

549. Where PSK signals are generally found on the 20 meter band?

a) In the low end of the phone band

b) In the high end of the phone band
c) In the weak signal portion of the band
d) Around 14.070 MHz

Answer: d;

550. In a capacitor, what causes opposition to the flow of AC?

a) Resistance
b) Reluctance
c) Reactance
d) Admittance

Answer: c;

551. When using voice transmissions, it is wise to

a) use jargon continuously
b) use plain language
c) do everything in Q codes
d) speak as fast as possible

Answer: b;

552. How the call sign "S21AB" may be stated phonetically?

a) Santiago Two One Apple Bravo
b) Sierra Two One Alpha Bravo
c) Santiago Tango One Alpha Bravo
d) Sierra Two One Alpha Bravo

Answer: b;

553. In the RST code “R” is for

a) Radio
b) Readability
c) Rare Station
d) a type of emission

Answer: b;

554. Which of the following conditions require an Amateur Radio station licensee to take specific steps to avoid harmful interference to other users or facilities?

a) When operating within one mile of a Monitoring Station
b) When using a band where the Amateur Service is secondary
c) When a station is transmitting spread spectrum emissions
d) All of these choices are correct

Answer: d;

555. How can the current (I) be calculated when the voltage (E) and resistance (R) in a dc circuit is known?

a) I = E / R

b) P = I x E
c) I = R x E
d) I = E x R

Answer: a;

556. How can the power (W) be calculated when the voltage (V) and current (I) in a dc circuit is known?

a) W = V x I
b) W = V + I
c) W = V / I
d) W = I^2 x R

Answer: a;

557. A light bulb draws 0.5 A from a 12 V battery when lit. How much power does it consume?

a) 6 W
b) 3 W
c) 60 W
d) 0.6 W

Answer: a;

558. Three 9 kohm carbon resistors are connected in parallel across a 6.0 Volts dc supply. Total current is:

a) 50 A
b) 0.5 mA
c) 2 mA
d) 1 A

Answer: c;

559. Two capacitors 10 nF each are Connected in parallel, what is the resultant capacitance?

a) 10 nF
b) 20 nF
c) 5 nF
d) None of above

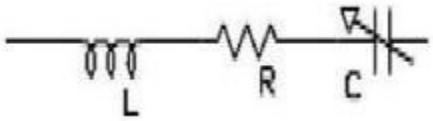
Answer: b;

560. What portion of the AC cycle is converted to DC by a half-wave rectifier?

a) 90 degrees
b) 180 degrees
c) 270 degrees
d) 360 degrees

Answer: b;

561. The impedance of the circuit at resonance is



a) R
b) Infinity
c) C
d) L

Answer: a;

562. Three 300 pF capacitors are connected in series. What is the resultant capacitance?

a) 100 pF
b) 900 pF
c) 450 pF
d) 1 nF

Answer: a;

563. Two 10 kohm resistors are connected in parallel across a 5V dc supply. Total current is:

a) 50 A
b) 0.5 mA
c) 1 mA
d) 1 A

Answer: c;

564. If ten cells each capable of delivering 1 Amp are connected in series, the current capability is:

a) 100 mA
b) 1 A
c) 2 A
d) 10 A

Answer: b;

565. What would be the RMS voltage across a 50-ohm dummy load dissipating 1200 watts?

a) 173 volts
b) 245 volts
c) 346 volts
d) 692 volts

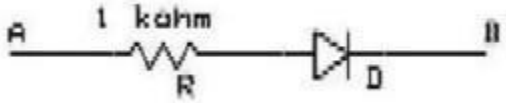
Answer: b;

566. An oscillator should ideally be followed by:

a) a buffer
b) a power amplifier
c) a class C amplifier
d) a notch filter

Answer: a;

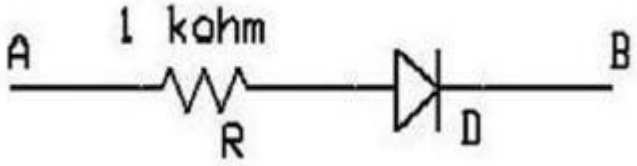
567. If 12 mA is to flow through the below combination, the voltage of A with respect to B must be:



a) -12.6 V
b) -6.6 V
c) +12.6 V
d) +12 V

Answer: c;

568. If 5 mA is to flow through the below combination, the voltage of A with respect to B must be



a) -5.6 V
b) -10.6 V
c) 5 V
d) 5.6 V

Answer: d;

569. What would be the RMS voltage across a 50-ohm dummy load dissipating 968 watts?

a) 173 volts
b) 245 volts
c) 220 volts
d) 484 volts

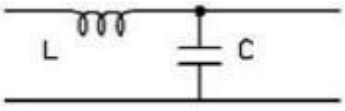
Answer: c;

570. Two resistors are connected in series. The combined resistance is 1200 ohm. If one of the resistors is 800 ohm, what is the value of the other?

a) 400 ohm
b) 2000 ohm
c) 200 ohm
d) 800 ohm

Answer: a;

571. Two resistors are connected in series. The combined resistance is 1200 ohm. If one of the resistors is 800 ohm, what is the value of the other?



a) to increase high frequency content of the signal.
b) to limit audio bandwidth
c) to limit amplitude of the audio signal
d) to provide RF compression

Answer: b;

572. If the base voltage is increased on a NPN transistor in class B configuration, the collectorcurrent will increased on a NPN transistor in class B configuration, the collector current will

a) remain constant
b) decrease a little
c) increase noticeably
d) decrease noticeably

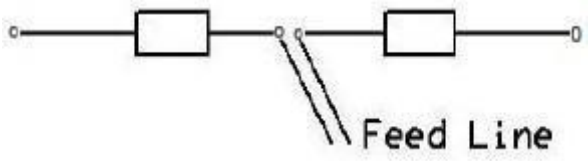
Answer: d;

573. Which is the lowest ionospheric layer ?

a) F1
b) F2
c) D
d) E

Answer: c;

574. The antenna below represents



a) an end fed wire
b) a simple dipole
c) a cubical quad
d) a trap dipole

Answer: d;

575. The 10 meter band lies between:

a) 28.0-28.7 MHz
b) 28.7-29.0 MHz
c) 28.0-29.0 MHz
d) 28.0-29.7 MHz

Answer: d;

576. What emission type describe frequency modulated voice transmissions?

a) FM phone
b) Image
c) CW
d) Single-side band phone

Answer: a;

577. A transmission on 14.18 MHz can be received by station A 3000 miles away but not by station B only 30 miles away. This is because

a) station B is in the skip zone
b) the ground and ionospheric wave cancel out at station B
c) two reflected waves arrive at B with opposite phase
d) propagatonal conditions are worse than normal

Answer: a;

578. Your transmitter radiates signals outside the amateur band when you are transmitting. What term describes the radiation?

a) Off-frequency emissions
b) Transmitter chirp
c) Incidental radiation
d) Spurious emissions

Answer: d;

579. The first odd harmonic of 144.69 MHz is:
a) 48.23 MHz
b) 289.69 MHz
c) 434.07 MHz
d) 723.45 MHz

Answer: c;

580. Having established contact on a calling frequency it is good practice to

a) stay on the same frequency
b) move to another frequency
c) invite others to join on the same frequency
d) be objectionable to all others calling

Answer: b;

581. What is one way that RF energy can affect human body tissue?

a) It heats body tissue
b) It causes radiation poisoning
c) It causes the blood count to reach a dangerously low level
d) It cools body tissue

Answer: a;

582. To prevent annoying other users on a band a transmitter should always be tuned initially

a) on a harmonic outside the band
b) into an antenna
c) into a dummy load
d) into a dipole

Answer: c;

583. A crystal oscillator can:-

a) be varied over a very wide range
b) be always unstable
c) be kept in a draught
d) only be varied over a very small range

Answer: d;

584. What is the meaning of the signal "QRT"?

a) The correct time is
b) send RST report
c) stop sending
d) send more slowly

Answer: c;

585. Meaning of signal "QRZ" is

a) who is calling me ?
b) what is the radio zone ?
c) what time zone are you in ?
d) what time zone are you in ?

Answer: a;

586. How the call sign "KJ1UOI" may be stated phonetically?

a) King John One Uncle Oboe India
b) Kilo John One Uncle Of India
c) Kilo Juliette One Uniform Oscar India
d) Kentucky Juliette One United Ontario Indiana

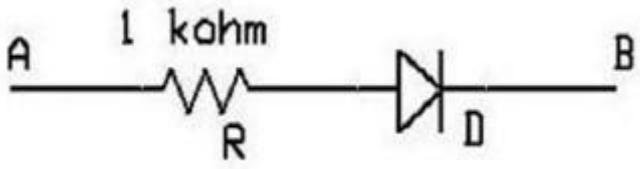
Answer: c;

587. In the RST code T is for

a) Temperature of the PA stage
b) Tone
c) Time of transmission
d) Type of emission

Answer: b;

588. If 10 mA is to flow through the above combination, the voltage of A with respect to B must be :



a) -10.6 V

b) -10 V
c) 10 V
d) 10.6 V

Answer: d;

589. One advantage of FM over AM is:

a) increase range in distance
b) narrower bandwidth required
c) freedom from most sources of manmade interference
d) lower cost of equipment

Answer: c;

590. The highest frequency that can be used between two stations on HF for satisfactory communication is called the:

a) optimum working frequency
b) critical frequency
c) maximum useable frequency
d) penetration limiting frequency

Answer: c;

591. A digital frequency meter can be used to:

a) measure harmonic content accurately
b) measure sideband content
c) measure frequency deviation
d) measure frequency accurately

Answer: d;

592. "Skin effect" is the name given to

a) the ability of RF to give flesh burns
b) the dielectric used in coaxial cables
c) the tendency of RF to flow in the surface of a conductor
d) the penetration of flesh by RF signals

Answer: c;

593. What is the meaning of "Your report is three three"?

a) The contact is serial number 33
b) The station is located at latitude 33 degrees
c) Your signal is readable with considerable difficulty and weak in strength
d) Your signal is unreadable, very weak in strength

Answer: c;

594. What is the ionosphere?

a) The part of the upper atmosphere where enough ions & free electrons exist to affect radio-wave propagation
b) The boundary between two air masses of different temperature and humidity, along which radio waves can travel
c) The ball that goes on the top of a mobile whip antenna
d) That part of the atmosphere where weather takes place

Answer: a;

595. What is solar flux?

a) The density of the sun's magnetic field
b) The radio energy emitted by the sun
c) The number of sunspots on the side of the sun facing the earth
d) A measure of the tilt of the earth's ionosphere on the side toward the sun

Answer: b;

596. What type of solar radiation is most responsible for ionization in the outer atmosphere?

a) Thermal
b) Ionized particle
c) Ultraviolet
d) Microwave

Answer: c;

597. What does the term “critical angle” mean as used in radio wave propagation?

a) The long path azimuth of a distant station
b) The short path azimuth of a distant station
c) The lowest takeoff angle that will return a radio wave to the earth under specific ionospheric conditions
d) The highest takeoff angle that will return a radio wave to the earth under specific ionospheric conditions

Answer: d;

598. What is a geomagnetic storm?

a) A sudden drop in the solar-flux index
b) A thunderstorm which affects radio propagation
c) Ripples in the ionosphere
d) A temporary disturbance in the Earth's magnetosphere

Answer: d;

599. Which of the following would be used to examine the shape of a waveform?

a) an oscilloscope
b) an absorption wave meter
c) a digital frequency counter
d) a multimeter

Answer: a;

600. What is meant by the term resistance?

a) The opposition to the flow of current in an electric circuit containing inductors
b) The opposition to the flow of current in an electric circuit containing capacitors
c) The opposition to the flow of current in an electric circuit containing reactance
d) The opposition to the flow of current in an electric circuit that does not contain reactance

Answer: d;

601. What is the primary function of a resistor?

a) To store an electric charge
b) to store a magnetic field
c) To match a high impedance source to a low impedance load
d) To limit the current in an electric circuit

Answer: d;

602. What is an inductor?
a) An electronic component that store energy in elect. Field
b) An electronic component that converts a high voltage to a lower voltage
c) An electronic component that opposes DC while allowing AC to pass.
d) An electronic component that stores energy in magnetic field

Answer: d;

603. What circuit passes electrical energy below a certain frequency and blocks electrical energy above that frequency?
a) a band-pass filter
b) a high-pass filter
c) an input filter
d) a low-pass filter

Answer: d;

604. How many directly driven elements does a Yagi antenna have?

a) None; they are all parasitic
b) One
c) Two
d) All elements directly driven

Answer: b;

605. The phase difference between voltage and current in a purely inductive circuit is:

a) 0 deg
b) 45 deg
c) 90 deg
d) 180 deg

Answer: c;

606. The phase difference between voltage and current in a purely capacitive circuit is:

a) 0 deg
b) 45 deg
c) 90 deg
d) 180 deg

Answer: c;

607. The phase difference between voltage and current in a purely resistive circuit is:

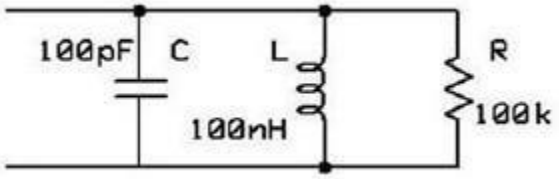
a) 0 deg
b) 45 deg
c) 90 deg
d) 180 deg

Answer: a;

608. In order to convey information, a carrier must have:
a) distortion
b) harmonics
c) a constant envelope
d) sidebands

Answer: d;

609. The resonant frequency of the circuit is



a) 50.3 kHz
b) 5.03 MHz
c) 50.3 MHz
d) 503.0 MHz

Answer: c;

610. An integrated circuit is:

a) a passive device only
b) a complete set of capacitors
c) an encapsulated complex circuit
d) a discrete component circuit

Answer: c;

611. A digital frequency meter can be used to :

a) measure harmonic content accurately
b) measure sideband content
c) measure frequency deviation
d) measure frequency accurately

Answer: d;

612. A Carbon resistor has four colour rings, namely red, green, orange and gold. What is its value ?

a) 47 k ohm
b) 4.7 ohm
c) 33 k ohm
d) 25 k ohm

Answer: d;

613. A Carbon resistor has four color rings, namely red, green, orange and gold. What is its tolerance ?

a) 0%
b) 20%
c) 5%
d) 1%

Answer: d;

614. The value of the resistor is 4.7 k ohm, which one below is the correct color coding?

a) Orange, violet and orange
b) Yellow, green and red
c) Orange, violet and red
d) Yellow, green and orange

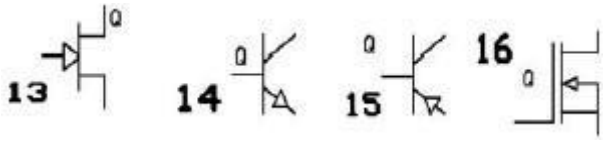
Answer: b;

615. The transmission defined as RTTY shall encompass:

a) only ASCII transmissions
b) binary-coded decimal encoding
c) AMTOR only
d) radio teletype and AMTOR

Answer: d;

616. The symbol marked 14 stands for



a) NPN transistor
b) PNP transistor
c) Zener diode
d) Capacitor

Answer: a;

617. What is an advantage of a digital voltmeter as compared to an analog voltmeter?

a) Better for measuring computer circuits

b) Better for RF measurements
c) Better precision for most uses
d) Faster response

Answer: c;

618. The picture below is recognized as :

a) a Frequency Analyzer
b) a SWR meter
c) a Digital Power meter
d) an Antenna Tuner

Answer: b;

619. If the reactance of a 1 mH inductor is given as 1 kohm, the operating frequency must be :

a) 0.1592 kHz
b) 1.592 kHz
c) 15.92 kHz
d) 159.2 kHz

Answer: d;

620. The device shown below is a :

a) Digital Multimeter
b) Oscilloscope
c) Analog Multimeter
d) AC / DC Voltmeter

Answer: a;

621. The device shown below is a :

a) Digital Multimeter
b) Frequency Counter

c) Analog Multimeter
d) AC / DC Voltmeter

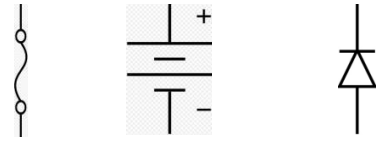
Answer: c;

622. The picture below is of a

a) Frequency Analyzer
b) HF Transceiver
c) VHF Transceiver
d) Communication Receiver

Answer: b;

623. The symbol 2 shown below stands for a:



1 2 3

a) 2 Capacitors in series
b) Diode
c) Cell
d) Battery

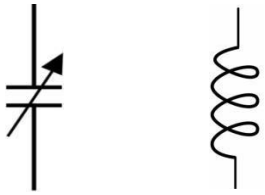
Answer: d;

624. The components below are respectively

a) Transistor & IC
b) Rectifier & IC
c) Transistor & Diode
d) Zener Diode FET

Answer: a;

625. The symbols shown in the picture stand for:



a) Capacitor and Transformer

b) Variable Capacitor and Inductor
c) Transistor and Inductor
d) Battery and Solenoid

Answer: b;

626. The connectors shown below is suitable for use with a :

a) VHF Antenna
b) HF Transceiver
c) 12 volts dc connection
d) HF Antenna connection

Answer: a;

627. Which of the following is a danger from lead-tin solder?

a) Lead can contaminate food if hands are not washed carefully after handling
b) High voltages can cause lead-tin solder to disintegrate suddenly
c) Tin in the solder can "cold flow" causing shorts in the circuit
d) RF energy can convert the lead into a poisonous gas

Answer: a;

628. Pictures below belong to a

a) Electrolytic Capacitor & a toroid
b) Paper Capacitor & a toroid
c) Ceramic Capacitor & a toroid
d) a Ceramic Capacitor & a fuse

Answer: c;

629. The solder wire is made of:

a) Lead
b) Tin
c) Roson
d) All of the above

Answer: d;

630. The device shown below is a :

a) Digital Multimeter
b) Frequency Counter
c) Analog Multimeter
d) AC / DC Voltmeter

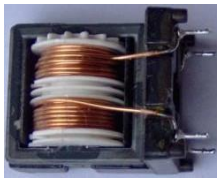
Answer: c;

631. The picture below is of a

a) Frequency Analyzer
b) HF Transceiver
c) VHF Transceiver
d) Communication Receiver

Answer: b;

632. The component shown below is a



a) Transformer
b) Rectifier & IC
c) Transistor & Diode
d) Zener Diode & FET

Answer: a;

633. Picture below respectively contains:

a) a DB-9 connector & a microphone
b) a DB-9 & a VHF transciever
c) a RG59 connector & a mic

d) a RG59 & a 2 meter set

Answer: a;

634. Picture below belongs to a

a) Electrolytic Capacitor
b) Paper Capacitor
c) Light Emitting Diode
d) Rectifier

Answer: a;

635. Picture below belongs to a

a) Electrolytic Capacitor
b) Paper Capacitor
c) Ceramic Capacitor
d) Diode

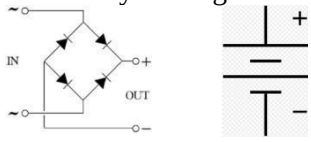
Answer: c;

636. The item shown below is

a) Copper wire
b) Nylon rope
c) Solder wire
d) None of above

Answer: c;

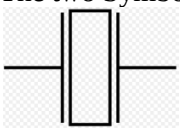
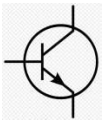
637. The two Symbols given below represents:



a) an IC and a capacitor
b) a transistor and a battery
c) a Zener diode and an LED
d) a rectifier bridge and a battery

Answer: d;

638. The two Symbols given below represents:

a) a crystal and a transistor
b) a battery and a transistor
c) a Zener diode and an LED
d) a diode and a transistor

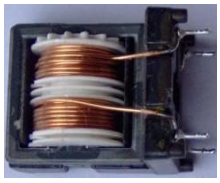
Answer: a;

639. The picture below is of a

a) Micro wave antenna
b) 24 GHz antenna
c) VHF antenna
d) Long wave antenna

Answer: c;

640. The components shown below are respectively




a) Transformer & Inductor
b) Choke & Inductor
c) Inductor & Transformer
d) DC Motor & Inductor

Answer: a;

641. The Pictures below show :


a) an LED & a resistor
b) a Capacitor & a resistor
c) Ceramic Capacitor & LED
d) a Rectifier & a Diode

Answer: a;

642. On which of the following bands is phone operation prohibited?

a) 160 meters
b) 30 meters
c) 17 meters
d) 12 meters

Answer: b;

643. On which of the following bands is image transmission prohibited?

a) 160 meters
b) 30 meters
c) 17 meters
d) 12 meters

Answer: b;

644. Which of the following frequencies is in the 12 meter band?

a) 3.940 MHz
b) 12.940 MHz
c) 17.940 MHz
d) 24.940 MHz

Answer: d;

645. Which of the following frequencies is within the General Class portion of the 20 meter phone band?

a) 14005 kHz
b) 14105 kHz
c) 14305 kHz
d) 14405 kHz

Answer: c;

646. Which of the following frequencies is within the General Class portion of the 15 meter band?

a) 14250 kHz
b) 18155 kHz
c) 21300 kHz
d) 24900 kHz

Answer: c;

647. Which of the following frequencies is within the General Class portion of the 15 meter band?

a) 14250 kHz
b) 18155 kHz
c) 21200 kHz
d) 24900 kHz

Answer: c;

648. Which, if any, amateur band is shared with the Citizens Radio Service?

a) 10 meters
b) 12 meters
c) 15 meters
d) None

Answer: d;

649. With which of the following conditions must beacon stations comply?

a) A beacon station may not use automatic control
b) The frequency must be coordinated with the National Beacon Organization
c) The frequency must be posted on the Internet or published in a national periodical
d) There must be no more than one beacon signal in the same band from a single location

Answer: d;

650. When is an amateur station permitted to transmit secret codes?

a) During a declared communications emergency
b) To control a space station
c) Only when the information is of a routine, personal nature
d) Only with Special Temporary Authorization

Answer: d;

651. When choosing a transmitting frequency, what should you do to comply with good amateur practice?

a) Review Rules regarding permitted frequencies and emissions
b) Follow generally accepted band plans agreed to by the Amateur Radio community.
c) Before transmitting, listen to avoid interfering with ongoing communication
d) All of these choices are correct

Answer: d;

652. When may an amateur station transmit communications in which the licensee has a pecuniary (monetary) interest?

a) When other amateurs are being notified of the sale of apparatus normally used in an amateur station and such activity is not done on a regular basis
b) Only when there is no other means of communications readily available
c) When other amateurs are being notified of the sale of any item with a monetary value less than $200 and such activity is not done on a regular basis
d) Never

Answer: a;

653. What is the power limit for beacon stations?

a) 10 watts PEP output
b) 20 watts PEP output
c) 100 watts PEP output

d) 200 watts PEP output

Answer: c;

654. How does an amateur station to be operated in all respects not specifically covered by the rules?

a) In conformance with the rules of the IARU
b) In conformance with Amateur Radio custom
c) In conformance with good engineering and good amateur practice
d) All of these choices are correct

Answer: c;

655. Who or what determines "good engineering and good amateur practice" as applied to the operation of an amateur station in all respects not covered by the rules?

a) The BTRC
b) The Control Operator
c) The IEEE
d) The ITU

Answer: a;

656. What is the maximum bandwidth permitted for Amateur Radio stations when transmitting on USB frequencies in the 60 meter band?

a) 2.8 kHz
b) 5.6 kHz
c) 1.8 kHz
d) 3 kHz

Answer: a;

657. Which of the following is a limitation on transmitter power on the 14 MHz band?

a) Only the minimum power necessary to carry out the desired communications should be used
b) Power must be limited to 200 watts when transmitting between 14.100 MHz and 14.150 MHz
c) Power should be limited as necessary to avoid interference to another radio service on the frequency
d) Effective radiated power cannot exceed 3000 watts

Answer: a;

658. What is the maximum symbol rate permitted for RTTY or data emission transmission on the 20 meter band?

a) 56 kilobaud
b) 19.6 kilobaud
c) 1200 baud
d) 300 baud

Answer: d;

659. What is the maximum symbol rate permitted for RTTY or data emission transmitted at frequencies below 21 MHz?

a) 56 kilobaud
b) 19.6 kilobaud
c) 1200 baud
d) 300 baud

Answer: d;

660. What is the maximum symbol rate permitted for RTTY or data emission transmissions on the 10 meter band?

a) 56 kilobaud
b) 19.6 kilobaud
c) 1200 baud
d) 300 baud

Answer: c;

661. What is the maximum symbol rate permitted for RTTY or data emission transmissions on the 2 meter band?

a) 56 kilobaud
b) 19.6 kilobaud
c) 1200 baud
d) 300 baud

Answer: b;

662. What types of messages for a third party in another country may be transmitted by an amateur station?

a) Any message, as long as the amateur operator is not paid
b) Only messages for other licensed amateurs
c) Only messages relating to Amateur Radio or remarks of a personal character, or messages relating to emergencies or disaster relief
d) Any messages, as long as the text of the message is recorded in the station log

Answer: d;

663. What language must you use when identifying your station if you are using a language other than English in making a contact using phone emission?

a) The language being used for the contact
b) Any language if the US has a third party agreement with that country
c) English
d) Any language of a country that is a member of the ITU

Answer: c;

664. What portion of the 10 meter band is available for repeater use?

a) The entire band
b) The portion between 28.1 MHz and 28.2 MHz

c) The portion between 28.3 MHz and 28.5 MHz
d) The portion above 29.5 MHz

Answer: d;

665. Which sideband is most commonly used for voice communications on frequencies of 14 MHz or higher?

a) Upper sideband
b) Lower sideband
c) Vestigial sideband
d) Double sideband

Answer: a;

666. Which of the following modes is most commonly used for voice communications on the 160, 75, and 40 meter bands?

a) Upper sideband
b) Lower sideband
c) Vestigial sideband
d) Double sideband

Answer: b;

667. Which of the following is most commonly used for SSB voice communications in the VHF and UHF bands?

a) Upper sideband
b) Lower sideband
c) Vestigial sideband
d) Double sideband

Answer: a;

668. Which mode is most commonly used for voice communications on the 17 and 12 meter bands?

a) Upper sideband
b) Lower sideband
c) Vestigial sideband
d) Double sideband

Answer: a;

669. Which mode of voice communication is most commonly used on the high frequency amateur bands?

a) Frequency Modulation
b) Double Sideband
c) Single Sideband
d) Phase Modulation

Answer: c;

670. Which of the following is an advantage when using single sideband as compared to other analog voice modes on the HF amateur bands?

a) Very high fidelity voice modulation
b) Less bandwidth used and higher power efficiency
c) Ease of tuning on receive and immunity to impulse noise
d) Less subject to static crashes (atmospherics)

Answer: b;

671. Which of the following statements is true of the single sideband (SSB) voice mode?

a) Only one sideband and the carrier are transmitted; the other sideband is suppressed
b) Only one sideband is transmitted; the other sideband and carrier are suppressed
c) SSB voice transmissions have higher average power than any other mode
d) SSB is the only mode that is authorized on the 160, 75 and 40 meter amateur bands

Answer: b;

672. Which of the following is a recommended way to break into a conversation when using phone?

a) Say "QRZ" several times followed by your call sign
b) Say your call sign during a break between transmissions from the other stations
c) Say "Break. Break. Break." and wait for a response
d) Say "CQ" followed by the call sign of either station

Answer: b;

673. Why do most amateur stations use lower sideband on the 160, 75 and 40 meter bands?

a) Lower sideband is more efficient than upper sideband at these frequencies
b) Lower sideband is the only sideband legal on these frequency bands
c) Because it is fully compatible with an AM detector
d) Current amateur practice is to use lower sideband on these frequency bands

Answer: d;

674. Which of the following statements is true of SSB VOX operation?

a) The received signal is more natural sounding
b) VOX allows "hands free" operation
c) Frequency spectrum is conserved
d) Provides more power output

Answer: b;

675. What does the expression "CQ DX" usually indicate?

a) A general call for any station
b) The caller is listening for a station in Germany
c) The caller is looking for any station outside their own country
d) A distress call

Answer: c;

676. Which of the following is true concerning access to frequencies?

a) Nets always have priority
b) QSO's in process always have priority
c) No one has priority access to frequencies, common courtesy should be a guide
d) Contest operations must always yield to non-contest use of frequencies

Answer: c;

677. What is the first thing you should do if you are communicating with another amateur stationand hear a station in distress break in?

a) Continue your communication because you were on frequency first
b) Acknowledge the station in distress and determine what assistance may be needed
c) Change to a different frequency
d) Immediately cease all transmissions

Answer: b;

678. If propagation changes during your contact and you notice increasing interference from other activity on the same frequency, what should you do?

a) Tell the interfering stations to change frequency
b) Report the interference to your local Amateur Auxiliary Coordinator
c) As a common courtesy, move your contact to another frequency
d) Increase power to overcome interference

Answer: c;

679. When selecting a CW transmitting frequency, what minimum frequency separation should you allow in order to minimize interference to stations on adjacent frequencies?

a) 5 to 50 Hz
b) 150 to 500 Hz
c) 1 to 3 kHz
d) 3 to 6 kHz

Answer: b;

680. What is the customary minimum frequency separation between SSB signals under normal conditions?

a) Between 150 and 500 Hz
b) Approximately 3 kHz
c) Approximately 6 kHz
d) Approximately 10 kHz

Answer: d;

681. What is a practical way to avoid harmful interference when selecting a frequency to call CQ on CW or phone?

a) Send "QRL?" on CW, followed by your call sign; or, if using phone, ask if the frequencyis in use, followed by your call sign
b) Listen for 2 minutes before calling CQ

c) Send the letter "V" in Morse code several times and listen for a response
d) Send “QSY” on CW or if using phone, announce “the frequency is in use”, then send your call and listen for a response

Answer: a;

682. Which of the following complies with good amateur practice when choosing a frequency on which to initiate a call?

a) Check to see if the channel is assigned to another station
b) Identify your station by transmitting your call sign at least 3 times
c) Follow the voluntary band plan for the operating mode you intend to use
d) All of these choices are correct

Answer: c;

683. What should you do if a CW station sends "QRS"?

a) Send slower
b) Change frequency
c) Increase your power
d) Repeat everything twice

Answer: a;

684. What does it mean when a CW operator sends "KN" at the end of a transmission?

a) Listening for novice stations
b) Operating full break-in
c) Listening only for a specific station or stations
d) Closing station now

Answer: c;

685. What does it mean when a CW operator sends "CL" at the end of a transmission?

a) Keep frequency clear
b) Operating full break-in
c) Listening only for a specific station or stations
d) Closing station

Answer: d;

686. What is the best speed to use answering a CQ in Morse Code?

a) The fastest speed at which you are comfortable copying
b) The speed at which the CQ was sent
c) A slow speed until contact is established
d) 5 wpm, as all operators licensed to operate CW can copy this speed

Answer: b;

687. What does the term “zero beat” mean in CW operation?

a) Matching the speed of the transmitting station

b) Operating split to avoid interference on frequency
c) Sending without error
d) Matching your transmit frequency to the frequency of a received signal

Answer: d;

688. When sending CW, what does a “C” mean when added to the RST report?

a) Chirpy or unstable signal
b) Report was read from S meter reading rather than estimated
c) 100 percent copy
d) Key clicks

Answer: a;

689. What prosign is sent to indicate the end of a formal message when using CW?

a) SK
b) BK
c) AR
d) KN

Answer: c;

690. What does the Q signal "QSL" mean?

a) Send slower
b) We have already confirmed by card
c) I acknowledge receipt
d) We have worked before

Answer: c;

691. What does the Q signal "QRQ" mean?

a) Slow down
b) Send faster
c) Zero beat my signal
d) Quitting operation

Answer: b;

692. How is a directional antenna pointed when making a “long-path” contact with another station?

a) Toward the rising Sun
b) Along the gray line
c) 180 degrees from its short-path heading
d) Toward the north

Answer: c;

693. What information is traditionally contained in a station log?

a) Date and time of contact
b) Band and/or frequency of the contact

c) Call sign of station contacted and the signal report given
d) All of these choices are correct

Answer: d;

694. What is QRP operation?

a) Remote piloted model control
b) Low power transmit operation
c) Transmission using Quick Response Protocol
d) Traffic relay procedure net operation

Answer: b;

695. Which HF antenna would be the best to use for minimizing interference?

a) A quarter-wave vertical antenna
b) An isotropic antenna
c) A unidirectional antenna
d) An omnidirectional antenna

Answer: c;

696. Which mode is normally used when sending an RTTY signal via AFSK with an SSB transmitter?

a) USB
b) DSB
c) CW
d) LSB

Answer: d;

697. How many data bits are sent in a single PSK31 character?

a) The number varies
b) 5
c) 7
d) 8

Answer: a;

698. What part of a data packet contains the routing and handling information?

a) Directory
b) Preamble
c) Header
d) Footer

Answer: c;

699. What segment of the 20 meter band is most often used for data transmissions?

a) 14.000 - 14.050 MHz
b) 14.070 - 14.100 MHz

c) 14.150 - 14.225 MHz
d) 14.275 - 14.350 MHz

Answer: b;

700. Which of the following describes Baudot code?

a) A 7-bit code with start, stop and parity bits
b) A code using error detection and correction
c) A 5-bit code with additional start and stop bits
d) A code using SELCAL and LISTEN

Answer: c;

701. What is the most common frequency shift for RTTY emissions in the amateur HF bands?

a) 85 Hz
b) 170 Hz
c) 425 Hz
d) 850 Hz

Answer: b;

702. What does the abbreviation "RTTY" stand for?

a) Returning to you
b) Radio teletype
c) A general call to all digital stations
d) Repeater transmission type

Answer: b;

703. What segment of the 80 meter band is most commonly used for data transmissions?

a) 3570 – 3600 kHz
b) 3500 – 3525 kHz
c) 3700 – 3750 kHz
d) 3775 – 3825 kHz

Answer: a;

704. In what segment of the 20 meter band are most PSK31 operations commonly found?

a) At the bottom of the slow-scan TV segment, near 14.230 MHz
b) At the top of the SSB phone segment near 14.325 MHz
c) In the middle of the CW segment, near 14.100 MHz
d) Below the RTTY segment, near 14.070 MHz

Answer: d;

705. What does the abbreviation "MFSK" stand for?

a) Manual Frequency Shift Keying
b) Multi (or Multiple) Frequency Shift Keying
c) Manual Frequency Sideband Keying

d) Multi (or Multiple) Frequency Sideband Keying

Answer: b;

706. How does the receiving station respond to an ARQ data mode packet containing errors?

a) Terminates the contact
b) Requests the packet be retransmitted
c) Sends the packet back to the transmitting station
d) Requests a change in transmitting protocol

Answer: b;

707. In the PACTOR protocol, what is meant by an NAK response to a transmitted packet?

a) The receiver is requesting the packet be re-transmitted
b) The receiver is reporting the packet was received without error
c) The receiver is busy decoding the packet
d) The entire file has been received correctly

Answer: a;

708. What is the sunspot number?

a) A measure of solar activity based on counting sunspots and sunspot groups
b) A 3 digit identifier which is used to track individual sunspots
c) A measure of the radio flux from the Sun measured at 10.7 cm
d) A measure of the sunspot count based on radio flux measurements

Answer: a;

709. What effect does a Sudden Ionospheric Disturbance have on the daytime ionospheric propagation of HF radio waves?

a) It enhances propagation on all HF frequencies
b) It disrupts signals on lower frequencies more than those on higher frequencies
c) It disrupts communications via satellite more than direct communications
d) None, because only areas on the night side of the Earth are affected

Answer: b;

710. Approximately how long does it take the increased ultraviolet and X-ray radiation from solar flares to affect radio-wave propagation on the Earth?

a) 28 days
b) 1 to 2 hours
c) 8 minutes
d) 20 to 40 hours

Answer: c;

711. Which of the following amateur radio HF frequencies are least reliable for long distance communications during periods of low solar activity?

a) 3.5 MHz and lower

b) 7 MHz
c) 10 MHz
d) 21 MHz and higher

Answer: d;

712. What is a geomagnetic storm?

a) A sudden drop in the solar-flux index
b) A thunderstorm which affects radio propagation
c) Ripples in the ionosphere
d) A temporary disturbance in the Earth's magnetosphere

Answer: d;

713. At what point in the solar cycle does the 20 meter band usually support worldwide propagation during daylight hours?

a) At the summer solstice
b) Only at the maximum point of the solar cycle
c) Only at the minimum point of the solar cycle
d) At any point in the solar cycle

Answer: d;

714. What causes HF propagation conditions to vary periodically in a 28-day cycle?

a) Improved high-latitude HF propagation
b) Degraded high-latitude HF propagation
c) Improved ground-wave propagation
d) Improved chances of UHF ducting

Answer: b;

715. Which of the following effects can a geomagnetic storm have on radio-wave propagation?

a) Long term oscillations in the upper atmosphere
b) Cyclic variation in the Earth’s radiation belts
c) The Sun’s rotation on its axis
d) The position of the Moon in its orbit

Answer: c;

716. Approximately how long is the typical sunspot cycle?

a) 8 minutes
b) 40 hours
c) 28 days
d) 11 years

Answer: d;

717. How are radio communications usually affected by the charged particles that reach the Earth from solar coronal holes?

a) HF communications are improved
b) HF communications are disturbed
c) VHF/UHF ducting is improved
d) VHF/UHF ducting is disturbed

Answer: b;

718. How long does it take charged particles from coronal mass ejections to affect radio-wave propagation on the Earth?

a) 28 days
b) 28 days
c) 4 to 8 minutes
d) 20 to 40 hours

Answer: d;

719. How might a sky-wave signal sound if it arrives at your receiver by both short path and long path propagation?

a) Periodic fading approximately every 10 seconds
b) Signal strength increased by 3 dB
c) The signal might be cancelled causing severe attenuation
d) A well-defined echo might be heard

Answer: d;

720. Which of the following applies when selecting a frequency for lowest attenuation when transmitting on HF?

a) Select a frequency just below the MUF
b) Select a frequency just above the LUF
c) Select a frequency just below the critical frequency
d) Select a frequency just above the critical frequency

Answer: a;

721. What usually happens to radio waves with frequencies below the Maximum Usable Frequency (MUF) and above the Lowest Usable Frequency (LUF) when they are sent into the ionosphere?

a) They are bent back to the Earth
b) They pass through the ionosphere
c) They are amplified by interaction with the ionosphere
d) They are bent and trapped in the ionosphere to circle the Earth

Answer: a;

722. What usually happens to radio waves with frequencies below the Lowest Usable Frequency (LUF)?

a) They are bent back to the Earth
b) They pass through the ionosphere
c) They are completely absorbed by the ionosphere
d) They are bent and trapped in the ionosphere to circle the Earth

Answer: c;

723. What does LUF stand for?

a) The Lowest Usable Frequency for communications between two points
b) The Longest Universal Function for communications between two points
c) The Lowest Usable Frequency during a 24 hour period
d) The Longest Universal Function during a 24 hour period

Answer: a;

724. What does MUF stand for?

a) The Minimum Usable Frequency for communications between two points
b) The Maximum Usable Frequency for communications between two points
c) The Minimum Usable Frequency during a 24 hour period
d) The Maximum Usable Frequency during a 24 hour period

Answer: b;

725. What is the approximate maximum distance along the Earth's surface that is normally covered in one hop using the E region?

a) 180 miles
b) 1,200 miles
c) 2,500 miles
d) 12,000 miles

Answer: b;

726. What factors affect the Maximum Usable Frequency (MUF)?

a) Path distance and location
b) Time of day and season
c) Solar radiation and ionospheric disturbances
d) All of these choices are correct

Answer: d;

727. Which of the following ionospheric layers is closest to the surface of the Earth?

a) The D layer
b) The E layer
c) The F1 layer
d) The F2 layer

Answer: a;

728. Where on the Earth do ionospheric layers reach their maximum height?

a) Where the Sun is overhead
b) Where the Sun is on the opposite side of the Earth
c) Where the Sun is rising
d) Where the Sun has just set

Answer: a;

729. What does the term “critical angle” mean as used in radio wave propagation?

a) The short path azimuth of a distant station
b) The long path azimuth of a distant station
c) The lowest takeoff angle that will return a radio wave to the Earth under specific ionospheric conditions
d) The highest takeoff angle that will return a radio wave to the Earth under specific ionospheric conditions

Answer: d;

730. Why is long distance communication on the 40, 60, 80 and 160 meter bands more difficult during the day?

a) The F layer absorbs signals at these frequencies during daylight
b) The F layer is unstable during daylight hours
c) The D layer absorbs signals at these frequencies during daylight hours
d) The E layer is unstable during daylight hours

Answer: c;

731. What makes HF scatter signals often sound distorted?

a) The ionospheric layer involved is unstable
b) Ground waves are absorbing much of the signal
c) The E-region is not present
d) Energy is scattered into the skip zone through several different radio wave paths

Answer: d;

732. Why are HF scatter signals in the skip zone usually weak?

a) Only a small part of the signal energy is scattered into the skip zone
b) Signals are scattered from the magnetosphere which is not a good reflector
c) Propagation is through ground waves which absorb most of the signal energy
d) Propagations is through ducts in F region which absorb most of the energy

Answer: a;

733. Which of the following might be an indication that signals heard on the HF bands are being received via scatter propagation?

a) The communication is during a sunspot maximum
b) The communication is during a sudden ionospheric disturbance
c) The signal is heard on a frequency below the Maximum Usable Frequency
d) The signal is heard on a frequency above the Maximum Usable Frequency

Answer: d;

734. Which of the following antenna types will be most effective for skip communications on 40 meters during the day?

a) Vertical antennas

b) Horizontal dipoles placed between 1/8 and 1/4 wavelength above the ground
c) Left-hand circularly polarized antennas
d) Right-hand circularly polarized antenna

Answer: b;

735. What is Near Vertical Incidence Sky-wave (NVIS) propagation?

a) Propagation near the MUF
b) Short distance HF propagation using high elevation angles
c) Long path HF propagation at sunrise and sunset
d) Double hop propagation near the LUF

Answer: b;

736. What is the purpose of the "notch filter" found on many HF transceivers?

a) To restrict the transmitter voice bandwidth
b) To reduce interference from carriers in the receiver passband
c) To eliminate receiver interference from impulse noise sources
d) To enhance the reception of a specific frequency on a crowded band

Answer: b;

737. What is one advantage of selecting the opposite or "reverse" sideband when receiving CW signals on a typical HF transceiver?

a) Interference from impulse noise will be eliminated
b) More stations can be accommodated within a given signal passband
c) It may be possible to reduce or eliminate interference from other signals
d) Accidental out of band operation can be prevented

Answer: c;

738. What is a purpose of using Automatic Level Control (ALC) with a RF power amplifier?

a) To balance the transmitter audio frequency response
b) To reduce harmonic radiation
c) To reduce distortion due to excessive drive
d) To increase overall efficiency

Answer: c;

739. What type of device is often used to enable matching the transmitter output to an Impedance other than 50 ohms?

a) Balanced modulator
b) SWR Bridge
c) Antenna coupler
d) Q Multiplier

Answer: c;

740. What condition can lead to permanent damage when using a solid-state RF power amplifier?

a) Exceeding the Maximum Usable Frequency
b) Low input SWR
c) Shorting the input signal to ground
d) Excessive drive power

Answer: d;

741. Why is a time delay sometimes included in a transmitter keying circuit?

a) To prevent stations from talking over each other
b) To allow the transmitter power regulators to charge properly
c) To allow time for transmit-receive changeover operations to complete properly before RF output is allowed
d) To allow time for a warning signal to be sent to other stations

Answer: c;

742. What is the purpose of an electronic keyer?

a) Automatic transmit/receive switching
b) Automatic generation of strings of dots and dashes for CW operation
c) VOX operation
d) Computer interface for PSK and RTTY operation

Answer: b;

743. Which of the following is a use for the IF shift control on a receiver?

a) To avoid interference from stations very close to the receive frequency
b) To change frequency rapidly
c) To permit listening on a different frequency from that on which you are transmitting
d) To tune in stations that are slightly off frequency without changing your transmit frequency

Answer: a;

744. Which of the following is a common use for the dual VFO feature on a transceiver?

a) To allow transmitting on two frequencies at once
b) To permit full duplex operation, that is transmitting and receiving at the same time
c) To permit ease of monitoring the transmit and receive frequencies when they are not the same
d) To facilitate computer interface

Answer: c;

745. What is one reason to use the attenuator function that is present on many HF transceivers?

a) To reduce signal overload due to strong incoming signals
b) To reduce the transmitter power when driving a linear amplifier
c) To reduce power consumption when operating from batteries
d) To slow down received CW signals for better copy

Answer: a;

746. How should the transceiver audio input be adjusted when transmitting PSK31 data signals?

a) So that the transceiver is at maximum rated output power
b) So that the transceiver ALC system does not activate
c) So that the transceiver operates at no more than 25% of rated power
d) So that the transceiver ALC indicator shows half scale

Answer: b;

747. What item of test equipment contains horizontal and vertical channel amplifiers?

a) An ohmmeter
b) A signal generator
c) A signal generator
d) An oscilloscope

Answer: d;

748. Which of the following is an advantage of an oscilloscope versus a digital voltmeter?

a) An oscilloscope uses less power
b) Complex impedances can be easily measured
c) Input impedance is much lower
d) Complex waveforms can be measured

Answer: d;

749. Which of the following is the best instrument to use when checking the keying waveform of a CW transmitter?

a) An oscilloscope
b) A field-strength meter
c) A sidetone monitor
d) A wavemeter

Answer: a;

750. What signal source is connected to the vertical input of an oscilloscope when checking the RF envelope pattern of a transmitted signal?

a) The local oscillator of the transmitter
b) An external RF oscillator
c) The transmitter balanced mixer output
d) The attenuated RF output of the transmitter

Answer: d;

751. Why is high input impedance desirable for a voltmeter?

a) It improves the frequency response
b) It decreases battery consumption in the meter
c) It improves the resolution of the readings
d) It decreases the loading on circuits being measured

Answer: d;

752. Which of the following instruments may be used to monitor relative RF output when making antenna and transmitter adjustments?

a) A field-strength meter
b) An antenna noise bridge
c) A multimeter
d) A Q meter

Answer: a;

753. Which of the following can be determined with a field strength meter?

a) The radiation resistance of an antenna
b) The radiation pattern of an antenna
c) The presence and amount of phase distortion of a transmitter
d) The presence and amount of amplitude distortion of a transmitter

Answer: b;

754. Which of the following can be determined with a directional wattmeter?

a) Standing wave ratio
b) Antenna front-to-back ratio
c) RF interference
d) Radio wave propagation

Answer: a;

755. Which of the following must be connected to an antenna analyzer when it is being used for SWR measurements?

a) Receiver
b) Transmitter
c) Antenna and feed line
d) All of these choices are correct

Answer: c;

756. What problem can occur when making measurements on an antenna system with an antenna analyzer?

a) SWR readings may be incorrect if the antenna is too close to the Earth
b) Strong signals from nearby transmitters can affect the accuracy of measurements
c) The analyzer can be damaged if measurements outside the ham bands are attempted
d) Connecting the analyzer to an antenna can cause it to absorb harmonics

Answer: b;

757. What is a use for an antenna analyzer other than measuring the SWR of an antenna system?

a) Measuring the front to back ratio of an antenna
b) Measuring the turns ratio of a power transformer
c) Determining the impedance of an unknown or unmarked coaxial cable
d) Determining the gain of a directional antenna

Answer: c;

758. What is an instance in which the use of an instrument with analog readout may be preferred over an instrument with a numerical digital readout?

a) When testing logic circuits
b) When high precision is desired
c) When measuring the frequency of an oscillator
d) When adjusting tuned circuits

Answer: d;

759. Which of the following might be useful in reducing RF interference to audio-frequency devices?

a) Bypass inductor
b) Bypass capacitor
c) Forward-biased diode
d) Reverse-biased diode

Answer: d;

760. Which of the following could be a cause of interference covering a wide range of frequencies?

a) Not using a balun or line isolator to feed balanced antennas
b) Lack of rectification of the transmitter's signal in power conductors
c) Arcing at a poor electrical connection
d) The use of horizontal rather than vertical antennas

Answer: c;

761. What sound is heard from an audio device or telephone if there is interference from a nearby single-sideband phone transmitter?

a) A steady hum whenever the transmitter is on the air
b) On-and-off humming or clicking
c) Distorted speech
d) Clearly audible speech

Answer: c;

762. What is the effect on an audio device or telephone system if there is interference from a nearby CW transmitter?

a) On-and-off humming or clicking
b) A CW signal at a nearly pure audio frequency
c) A chirpy CW signal
d) Severely distorted audio

Answer: a;

763. What might be the problem if you receive an RF burn when touching your equipment while transmitting on an HF band, assuming the equipment is connected to a ground rod?

a) Flat braid rather than round wire has been used for the ground wire
b) Insulated wire has been used for the ground wire

c) The ground rod is resonant
d) The ground wire has high impedance on that frequency

Answer: d;

764. What effect can be caused by a resonant ground connection?

a) Overheating of ground straps
b) Corrosion of the ground rod
c) High RF voltages on the enclosures of station equipment
d) A ground loop

Answer: c;

765. Which of the following would reduce RF interference caused by common-mode current on an audio cable?

a) Placing a ferrite bead around the cable
b) Adding series capacitors to the conductors
c) Adding shunt inductors to the conductors
d) Adding an additional insulating jacket to the cable

Answer: a;

766. How can a ground loop be avoided?

a) Connect all ground conductors in series
b) Connect the AC neutral conductor to the ground wire
c) Avoid using lock washers and star washers when making ground connections
d) Connect all ground conductors to a single point

Answer: d;

767. What could be a symptom of a ground loop somewhere in your station?

a) You receive reports of "hum" on your station's transmitted signal
b) The SWR reading for one or more antennas is suddenly very high
c) An item of station equipment starts to draw excessive amounts of current
d) You receive reports of harmonic interference from your station

Answer: a;

768. Which of the following is one use for a Digital Signal Processor in an amateur station?

a) To provide adequate grounding
b) To remove noise from received signals
c) To increase antenna gain
d) To increase antenna bandwidth

Answer: b;

769. Which of the following is an advantage of a receiver Digital Signal Processor IF filter as compared to an analog filter?

a) A wide range of filter bandwidths and shapes can be created

b) Fewer digital components are required
c) Mixing products are greatly reduced
d) The DSP filter is much more effective at VHF frequencies

Answer: a;

770. Which of the following can perform automatic notching of interfering carriers?

a) Band-pass tuning
b) A Digital Signal Processor (DSP) filter
c) Balanced mixing
d) A noise limiter

Answer: b;

771. What is the purpose of a speech processor as used in a modern transceiver?

a) Increase the intelligibility of transmitted phone signals during poor conditions
b) Increase transmitter bass response for more natural sounding SSB signals
c) Prevent distortion of voice signals
d) Decrease high-frequency voice output to prevent out of band operation

Answer: a;

772. Which of the following describes how a speech processor affects a transmitted single sideband phone signal?

a) It increases peak power
b) It increases average power
c) It reduces harmonic distortion
d) It reduces intermodulation distortion

Answer: b;

773. Which of the following can be the result of an incorrectly adjusted speech processor?

a) Distorted speech
b) Splatter
c) Excessive background pickup
d) All of these choices are correct

Answer: d;

774. How does an S meter reading of 20 dB over S-9 compare to an S-9 signal, assuming a properly calibrated S meter?

a) It is 10 times weaker
b) It is 20 times weaker
c) It is 20 times stronger
d) It is 100 times stronger

Answer: d;

775. Where is an S meter found?

a) In a receiver
b) In an SWR bridge
c) In a transmitter
d) In a conductance bridge

Answer: a;

776. How much must the power output of a transmitter be raised to change the S- meter reading on a distant receiver from S8 to S9?

a) Approximately 1.5 times
b) Approximately 2 times
c) Approximately 4 times
d) Approximately 8 times

Answer: c;

777. What frequency range is occupied by a 3 kHz USB signal with the displayed carrier frequency set to 14.347 MHz?

a) 14.347 to 14.647 MHz
b) 14.347 to 14.350 MHz
c) 14.344 to 14.347 MHz
d) 14.3455 to 14.3485 MHz

Answer: b;

778. What is a "capacitance hat", when referring to a mobile antenna?

a) A device to increase the power handling capacity of a mobile whip antenna
b) A device that allows automatic band-changing for a mobile antenna
c) A device to electrically lengthen a physically short antenna
d) A device that allows remote tuning of a mobile antenna

Answer: c;

779. Which of the following direct, fused power connections would be the best for a 100-watt HF mobile installation?

a) To the battery using heavy gauge wire
b) To the alternator or generator using heavy gauge wire
c) To the battery using resistor wire
d) To the alternator or generator using resistor wire

Answer: a;

780. Why is it best NOT to draw the DC power for a 100-watt HF transceiver from an automobile's auxiliary power socket?

a) The socket is not wired with an RF-shielded power cable
b) The socket's wiring may be inadequate for the current being drawn by the transceiver
c) The DC polarity of the socket is reversed from the polarity of modern HF
d) Drawing more than 50 watts from this socket could cause the engine to overheat

Answer: b;

781. Which of the following most limits the effectiveness of an HF mobile transceiver operating in the 75 meter band?

a) "Picket Fencing" signal variation
b) The wire gauge of the DC power line to the transceiver
c) The antenna system
d) Rules limiting mobile output power on the 75 meter band

Answer: c;

782. What is one disadvantage of using a shortened mobile antenna as opposed to a full size antenna?

a) Short antennas are more likely to cause distortion of transmitted signals
b) Short antennas can only receive vertically polarized signals
c) Operating bandwidth may be very limited
d) Harmonic radiation may increase

Answer: c;

783. What is the name of the process by which sunlight is changed directly into electricity?

a) Photovoltaic conversion
b) Photon emission
c) hotosynthesis
d) Photon decomposition

Answer: a;

784. What is the approximate open-circuit voltage from a modern, well-illuminated photovoltaic cell?

a) 0.02 VDC
b) 0.5 VDC
c) 0.2 VDC
d) 1.38 VDC

Answer: b;

785. Which of the following is a disadvantage of using wind as the primary source of power for an emergency station?

a) The conversion efficiency from mechanical energy to electrical energy is less than 2 percent
b) The voltage and current ratings of such systems are not compatible with amateur equipment
c) A large energy storage system is needed to supply power when the wind is not blowing
d) All of these choices are correct

Answer: c;

786. What is impedance?

a) The electric charge stored by a capacitor
b) The inverse of resistance
c) The opposition to the flow of current in an AC circuit

d) The force of repulsion between two similar electric fields

Answer: c;

787. What is reactance?

a) Opposition to the flow of direct current caused by resistance
b) Opposition to the flow of alternating current caused by capacitance or inductance
c) A property of ideal resistors in AC circuits
d) A large spark produced at switch contacts when an inductor is de-energized

Answer: b;

788. Which of the following causes opposition to the flow of alternating current in an inductor?

a) Conductance
b) Reluctance
c) Admittance
d) Reactance

Answer: d;

789. Which of the following causes opposition to the flow of alternating current in a capacitor?

a) Conductance
b) Reluctance
c) Reactance
d) Admittance

Answer: c;

790. How does an inductor react to AC?

a) As the frequency of the applied AC increases, the reactance decreases
b) As the amplitude of the applied AC increases, the reactance increases
c) As the amplitude of the applied AC increases, the reactance decreases
d) As the frequency of the applied AC increases, the reactance increases

Answer: d;

791. How does a capacitor react to AC?

a) As the frequency of the applied AC increases, the reactance decreases
b) As the frequency of the applied AC increases, the reactance increases
c) As the amplitude of the applied AC increases, the reactance increases
d) As the amplitude of the applied AC increases, the reactance decreases

Answer: a;

792. What happens when the impedance of an electrical load is equal to the internal impedance of the power source?

a) The source delivers minimum power to the load
b) The electrical load is shorted
c) No current can flow through the circuit

d) The source can deliver maximum power to the load

Answer: d;

793. Why is impedance matching important?

a) So the source can deliver maximum power to the load
b) So the load will draw minimum power from the source
c) To ensure that there is less resistance than reactance in the circuit
d) To ensure that the resistance and reactance in the circuit are equal

Answer: a;

794. What unit is used to measure reactance?

a) Farad
b) Ohm
c) Ampere
d) Siemens

Answer: a;

795. What unit is used to measure impedance?

a) Volt
b) Ohm
c) Ampere
d) Watt

Answer: b;

796. Which of the following describes one method of impedance matching between two AC circuits?

a) Insert an LC network between the two circuits
b) Reduce the power output of the first circuit
c) Increase the power output of the first circuit
d) Insert a circulator between the two circuits

Answer: a;

797. What is one reason to use an impedance matching transformer?

a) To minimize transmitter power output
b) To maximize the transfer of power
c) To reduce power supply ripple
d) To minimize radiation resistance

Answer: b;

798. Which of the following devices can be used for impedance matching at radio frequencies?

a) A transformer
b) A Pi-network
c) A length of transmission line
d) All of these choices are correct

Answer: d;

799. A two-times increase or decrease in power results in a change of how many dB?

a) Approximately 2 dB
b) Approximately 3 dB
c) Approximately 6 dB
d) Approximately 12 dB

Answer: b;

800. How does the total current relate to the individual currents in each branch of a parallel circuit?

a) It equals the average of each branch current
b) It decreases as more parallel branches are added to the circuit
c) It equals the sum of the currents through each branch
d) It is the sum of the reciprocal of each individual voltage drop

Answer: c;

801. How many watts of electrical power are used if 400 VDC is supplied to an 800-ohm load?

a) 0.5 watts
b) 200 watts
c) 400 watts
d) 3200 watts

Answer: b;

802. How many watts of electrical power are used by a 12-VDC light bulb that draws 0.2 amperes?

a) 2.4 watts
b) 24 watts
c) 6 watts
d) 60 watts

Answer: a;

803. How many watts are dissipated when a current of 7.0 milliamperes flows through 1.25 kilohms?

a) Approximately 61 milliwatts
b) Approximately 61 watts
c) Approximately 11 milliwatts
d) Approximately 11 watts

Answer: a;

804. What is the output PEP from a transmitter if an oscilloscope measures 200 volts peak-to-peak across a 50-ohm dummy load connected to the transmitter output?

a) 1.4 watts
b) 100 watts
c) 353.5 watts
d) 400 watts

Answer: b;

805. Which value of an AC signal results in the same power dissipation as a DC voltage of the same value?

a) The peak-to-peak value
b) The peak value
c) The RMS value
d) The reciprocal of the RMS value

Answer: c;

806. What is the peak-to-peak voltage of a sine wave that has an RMS voltage of 120 volts?

a) 84.8 volts
b) 169.7 volts
c) 240.0 volts
d) 339.4 volts

Answer: d;

807. What is the RMS voltage of a sine wave with a value of 17 volts peak?

a) 8.5 volts
b) 12 volts
c) 24 volts
d) 34 volts

Answer: b;

808. What percentage of power loss would result from a transmission line loss of 1 dB?

a) 10.9%
b) 12.2%
c) 20.5%
d) 25.9%

Answer: c;

809. What is the ratio of peak envelope power to average power for an unmodulated carrier?

a) .707
b) 1.00
c) 1.414
d) 2.00

Answer: b;

810. What is the output PEP of an unmodulated carrier if an average reading wattmeter connected to the transmitter output indicates 1060 watts?

a) 530 watts
b) 1060 watts
c) 1500 watts

d) 2120 watts

Answer: d;

811. What is the output PEP from a transmitter if an oscilloscope measures 500 volts peak-to-peak across a 50-ohm resistor connected to the transmitter output?

a) 8.75 watts
b) 625 watts
c) 2500 watts
d) 5000 watts

Answer: b;

812. What causes a voltage to appear across the secondary winding of a transformer when an AC voltage source is connected across its primary winding?

a) Capacitive coupling
b) Displacement current coupling
c) Mutual inductance
d) Mutual capacitance

Answer: c;

813. Which part of a transformer is normally connected to the incoming source of energy?

a) The secondary
b) The primary
c) The core
d) The plates

Answer: b;

814. Which of the following components should be added to an existing resistor to increase the resistance?

a) A resistor in parallel
b) A resistor in series
c) A capacitor in series
d) A capacitor in parallel

Answer: b;

815. What is the total resistance of three 100-ohm resistors in parallel?

a) .30 ohms
b) .33 ohms
c) 33.3 ohms
d) 300 ohms

Answer: c;

816. If three equal value resistors in parallel produce 50 ohms of resistance, and the same three resistors in series produce 450 ohms, what is the value of each resistor?

a) 1500 ohms
b) 90 ohms
c) 150 ohms
d) 175 ohms

Answer: c;

817. What is the RMS voltage across a 500-turn secondary winding in a transformer if the 2250-turn primary is connected to 120 VAC?

a) 2370 volts
b) 540 volts
c) 26.7 volts
d) 5.9 volts

Answer: c;

818. What is the capacitance of three 100 microfarad capacitors connected in series?

a) .30 microfarads
b) .33 microfarads
c) 33.3 microfarads
d) 300 microfarads

Answer: c;

819. What is the inductance of three 10 millihenry inductors connected in parallel?

a) .30 Henrys
b) 3.3 Henrys
c) 3.3 millihenrys
d) 30 millihenrys

Answer: c;

820. What is the inductance of a 20 millihenry inductor in series with a 50 millihenry inductor?

a) .07 millihenrys
b) 14.3 millihenrys
c) 70 millihenrys
d) 1000 millihenrys

Answer: c;

821. What is the capacitance of a 20 microfarad capacitor in series with a 50 microfarad capacitor?

a) .07 microfarads
b) 14.3 microfarads
c) 70 microfarads
d) 1000 microfarads

Answer: b;

822. Which of the following components should be added to a capacitor to increase the capacitance?

a) An inductor in series
b) A resistor in series
c) A capacitor in parallel
d) A capacitor in series

Answer: c;

823. Which of the following components should be added to an inductor to increase the inductance?

a) A capacitor in series
b) A resistor in parallel
c) An inductor in parallel
d) An inductor in series

Answer: d;

824. What is the total resistance of a 10 ohm, a 20 ohm, and a 50 ohm resistor in parallel?

a) 5.9 ohms
b) 0.17 ohms
c) 10000 ohms
d) 80 ohms

Answer: a;

825. Which of the following is an important characteristic for capacitors used to filter the DC outputof a switching power supply?

a) Low equivalent series resistance
b) High equivalent series resistance
c) Low Temperature coefficient
d) High Temperature coefficient

Answer: a;

826. Which of the following types of capacitors are often used in power supply circuits to filter the rectified AC?

a) Disc ceramic
b) Vacuum variable
c) Mica
d) Electrolytic

Answer: d;

827. Which of the following is an advantage of ceramic capacitors as compared to other types of capacitors?

a) Tight tolerance
b) High stability
c) High capacitance for given volume
d) Comparatively low cost

Answer: d;

828. Which of the following is an advantage of an electrolytic capacitor?

a) Tight tolerance
b) Non-polarized
c) High capacitance for given volume
d) Inexpensive RF capacitor

Answer: c;

829. Which of the following is one effect of lead inductance in a capacitor used at VHF and above?

a) Effective capacitance may be reduced
b) Voltage rating may be reduced
c) ESR may be reduced
d) The polarity of the capacitor might become reversed

Answer: a;

830. What will happen to the resistance if the temperature of a resistor is increased?

a) It will change depending on the resistor’s reactance coefficient
b) It will stay the same
c) It will change depending on the resistor's temperature coefficient
d) It will become time dependent

Answer: c;

831. Which of the following is a reason not to use wire-wound resistors in an RF circuit?

a) The resistor's tolerance value would not be adequate for such a circuit
b) The resistor could overheat
c) The resistor's inductance could make circuit performance unpredictable
d) The resistor's internal capacitance would detune the circuit

Answer: c;

832. Which of the following describes a thermistor?

a) A resistor that is resistant to changes in value with temperature variations
b) A device having a specific change in resistance with temperature variations
c) A special type of transistor for use at very cold temperatures
d) A capacitor that changes value with temperature

Answer: b;

833. What is an advantage of using a ferrite core toroidal inductor?

a) Large values of inductance may be obtained
b) The magnetic properties of the core may be optimized for a specific range of frequencies
c) Most of the magnetic field is contained in the core
d) All of these choices are correct

Answer: d;

834. How should the winding axes of solenoid inductors be placed to minimize their mutual inductance?

a) In line
b) Parallel to each other
c) At right angles
d) Interleaved

Answer: c;

835. Why would it be important to minimize the mutual inductance between two inductors?

a) To increase the energy transfer between circuits
b) To reduce unwanted coupling between circuits
c) To reduce conducted emissions
d) To increase the self-resonant frequency of the inductors

Answer: b;

836. What is a common name for an inductor used to help smooth the DC output from the rectifier in a conventional power supply?

a) Back EMF choke
b) Repulsion coil
c) Charging inductor
d) Filter choke

Answer: d;

837. What is an effect of inter-turn capacitance in an inductor?

a) The magnetic field may become inverted
b) The inductor may become self-resonant at some frequencies
c) The permeability will increase
d) The voltage rating may be exceeded

Answer: b;

838. What is the peak-inverse-voltage rating of a rectifier?

a) The maximum voltage the rectifier will handle in the conducting direction
b) 1.4 times the AC frequency
c) The maximum voltage the rectifier will handle in the non-conducting direction
d) 2.8 times the AC frequency

Answer: c;

839. What are two major ratings that must not be exceeded for silicon diode rectifiers?

a) Peak inverse voltage; average forward current
b) Average power; average voltage
c) Capacitive reactance; avalanche voltage
d) Peak load impedance; peak voltage

Answer: a;

840. What is the approximate junction threshold voltage of a germanium diode?

a) 0.1 volt
b) 0.3 volts
c) 0.7 volts
d) 1.0 volts

Answer: b;

841. When two or more diodes are connected in parallel to increase current handling capacity, what is the purpose of the resistor connected in series with each diode?

a) To ensure the thermal stability of the power supply
b) To regulate the power supply output voltage
c) To ensure that one diode doesn't carry most of the current
d) To act as an inductor

Answer: c;

842. What is the approximate junction threshold voltage of a conventional silicon diode?

a) 0.1 volt
b) 0.3 volts
c) 0.7 volts
d) 1.0 volts

Answer: c;

843. What are the stable operating points for a bipolar transistor used as a switch in a logic circuit?

a) Its saturation and cut-off regions
b) Its active region (between the cut-off and saturation regions)
c) Its peak and valley current points
d) Its enhancement and deletion modes

Answer: a;

844. Why must the cases of some large power transistors be insulated from ground?

a) To increase the beta of the transistor
b) To improve the power dissipation capability
c) To reduce stray capacitance
d) To avoid shorting the collector or drain voltage to ground

Answer: d;

845. Which of the following describes the construction of a MOSFET?

a) The gate is formed by a back-biased junction
b) The gate is separated from the channel with a thin insulating lay
c) The source is separated from the drain by a thin insulating layer
d) The source is formed by depositing metal on silicon

Answer: b;

846. What is an advantage of the low internal resistance of nickel-cadmium batteries?

a) Long life
b) High discharge current
c) High voltage
d) Rapid recharge

Answer: b;

847. What is the minimum allowable discharge voltage for maximum life of a standard 12 volt lead acid battery?

a) 6 volts
b) 8.5 volts
c) 10.5 volts
d) 12 volts

Answer: c;

848. When is it acceptable to recharge a carbon-zinc primary cell?

a) As long as the voltage has not been allowed to drop below 1.0 volt
b) When the cell is kept warm during the recharging period
c) When a constant current charger is used
d) Never

Answer: d;

849. Which of the following is an analog integrated circuit?

a) NAND Gate
b) Microprocessor
c) Frequency Counter
d) Linear voltage regulator

Answer: d;

850. What is meant by the term MMIC?

a) Multi Megabyte Integrated Circuit
b) Monolithic Microwave Integrated Circuit
c) Military-specification Manufactured Integrated Circuit
d) Mode Modulated Integrated Circuit

Answer: b;

851. Which of the following is an advantage of CMOS integrated circuits compared to TTL integrated circuits?

a) Low power consumption
b) High power handling capability
c) Better suited for RF amplification
d) Better suited for power supply regulation

Answer: a;

852. What is meant by the term ROM?

a) Resistor Operated Memory
b) Read Only Memory
c) Random Operational Memory
d) Resistant to Overload Memory

Answer: b;

853. What is meant when memory is characterized as “non-volatile”?

a) It is resistant to radiation damage
b) It is resistant to high temperatures
c) The stored information is maintained even if power is removed
d) The stored information cannot be changed once written

Answer: a;

854. Which of the following describes an integrated circuit operational amplifier?

a) Digital
b) MMIC
c) Programmable Logic
d) Analog

Answer: d;

855. What is one disadvantage of an incandescent indicator compared to an LED?

a) Low power consumption
b) High speed
c) Long life
d) High power consumption

Answer: d;

856. How is an LED biased when emitting light?

a) Beyond cutoff
b) At the Zener voltage
c) Reverse Biased
d) Forward Biased

Answer: d;

857. Which of the following is a characteristic of a liquid crystal display?

a) It requires ambient or back lighting
b) It offers a wide dynamic range
c) It has a wide viewing angle
d) All of these choices are correct

Answer: a;

858. What two devices in an Amateur Radio station might be connected using a USB interface?

a) Computer and transceiver
b) Microphone and transceiver
c) Amplifier and antenna
d) Power supply and amplifier

Answer: a;

859. What is a microprocessor?

a) A low power analog signal processor used as a microwave detector
b) A computer on a single integrated circuit
c) A microwave detector, amplifier, and local oscillator on a single integrated circuit
d) A microwave detector, amplifier, and local oscillator on a single integrated circuit

Answer: b;

860. Which of the following connectors would be a good choice for a serial data port?

a) PL-259
b) Type N
c) Type SMA
d) DB-9

Answer: d;

861. Which of these connector types is commonly used for RF service at frequencies up to 150 MHz?

a) Octal
b) RJ-11
c) PL-259
d) DB-25

Answer: c;

862. Which of these connector types is commonly used for audio signals in Amateur Radio stations?

a) PL-259
b) BNC
c) RCA Phono
d) Type N

Answer: c;

863. Which of the following describes a type-N connector?

a) A moisture-resistant RF connector useful to 10 GHz
b) A small bayonet connector used for data circuits
c) A threaded connector used for hydraulic systems
d) An audio connector used in surround-sound installations

Answer: a;

864. What is the general description of a DIN type connector?

a) A special connector for microwave interfacing
b) A DC power connector rated for currents between 30 and 50 amperes
c) A family of multiple circuit connectors suitable for audio and control signals
d) A special watertight connector for use in marine applications

Answer: c;

865. What safety feature does a power-supply bleeder resistor provide?

a) It acts as a fuse for excess voltage
b) It discharges the filter capacitors
c) It removes shock hazards from the induction coils
d) It eliminates ground-loop current

Answer: c;

866. Which of the following components are used in a power-supply filter network?

a) Diodes
b) Transformers and transducers
c) Quartz crystals
d) Capacitors and inductors

Answer: d;

867. What is the peak-inverse-voltage across the rectifiers in a full-wave bridge power supply?

a) One-quarter the normal output voltage of the power supply
b) Half the normal output voltage of the power supply
c) Double the normal peak output voltage of the power supply
d) Equal to the normal peak output voltage of the power supply

Answer: d;

868. What portion of the AC cycle is converted to DC by a full-wave rectifier?

a) 90 degrees
b) 180 degrees
c) 270 degrees
d) 360 degrees

Answer: d;

869. What is the output waveform of an unfiltered full-wave rectifier connected to a resistive load?

a) A series of DC pulses at twice the frequency of the AC input
b) A series of DC pulses at the same frequency as the AC input
c) A sine wave at half the frequency of the AC input
d) A steady DC voltage

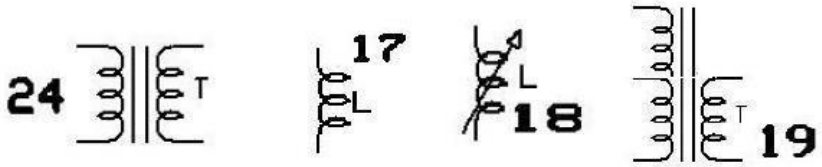
Answer: a;

870. Which of the following is an advantage of a switch-mode power supply as compared to a linear power supply?

a) None of those
b) Symbol 9
c) Symbol 10
d) Symbol 11

Answer: d;

871. Which symbol in Figure represents a multiple-winding transformer?



a) Symbol 17
b) Symbol 18
c) Symbol 19
d) Symbol 24

Answer: c;

872. Complex digital circuitry can often be replaced by what type of integrated circuit?

a) Microcontroller
b) Charge-coupled device
c) Phase detector
d) Window comparator

Answer: a;

873. Which of the following is an advantage of using the binary system when processing digital signals?

a) Binary "ones" and "zeros" are easy to represent with an "on" or "off" state
b) The binary number system is most accurate
c) Binary numbers are more compatible with analog circuitry
d) All of these choices are correct

Answer: a;

874. Which of the following describes the function of a two input AND gate?

a) Output is high when either or both inputs are low
b) Output is high only when both inputs are high
c) Output is low when either or both inputs are high
d) Output is low only when both inputs are high

Answer: b;

875. Which of the following describes the function of a two input NOR gate?

a) Output is high when either or both inputs are low
b) Output is high only when both inputs are high
c) Output is low when either or both inputs are high
d) Output is low only when both inputs are high

Answer: c;

876. How many states does a 3-bit binary counter have?

a) 3
b) 6
c) 8
d) 16

Answer: c;

877. What is a shift register?

a) A clocked array of circuits that passes data in steps along the array
b) An array of operational amplifiers used for tri state arithmetic operations
c) A digital mixer
d) An analog mixer

Answer: a;

878. What are the basic components of virtually all sine wave oscillators?

a) An amplifier and a divider
b) A frequency multiplier and a mixer
c) A circulator and a filter operating in a feed-forward loop
d) A filter and an amplifier operating in a feedback loop

Answer: d;

879. How is the efficiency of an RF power amplifier determined?

a) Divide the DC input power by the DC output power
b) Divide the RF output power by the DC input power
c) Multiply the RF input power by the reciprocal of the RF output power
d) Add the RF input power to the DC output power

Answer: b;

880. What determines the frequency of an LC oscillator?

a) The number of stages in the counter
b) The number of stages in the divider
c) The inductance and capacitance in the tank circuit
d) The time delay of the lag circuit

Answer: c;

881. Which of the following is a characteristic of a Class A amplifier?

a) Low standby power
b) High Efficiency
c) No need for bias
d) Low distortion

Answer: d;

882. For which of the following modes is a Class C power stage appropriate for amplifying amodulated signal?

a) SSB
b) CW
c) AM
d) All of these choices are correct

Answer: a;

883. Which of these classes of amplifiers has the highest efficiency?

a) Class A
b) Class B
c) Class AB
d) Class C

Answer: d;

884. What is the reason for neutralizing the final amplifier stage of a transmitter?

a) To limit the modulation index
b) To eliminate self-oscillations
c) To cut off the final amplifier during standby periods
d) To keep the carrier on frequency

Answer: b;

885. What is the reason for neutralizing the final amplifier stage of a transmitter?

a) To limit the modulation index
b) To eliminate self-oscillations
c) To cut off the final amplifier during standby periods
d) To keep the carrier on frequency

Answer: b;

886. Which of the following describes a linear amplifier?

a) Any RF power amplifier used in conjunction with an amateur transceiver
b) An amplifier in which the output preserves the input waveform
c) A Class C high efficiency amplifier
d) An amplifier used as a frequency multiplier

Answer: b;

887. Which circuit is used to combine signals from the carrier oscillator and speech amplifier and send the result to the filter in a typical singlesideband phone transmitter?

a) Discriminator
b) Detector
c) IF amplifier
d) Balanced modulator

Answer: d;

888. What circuit is used to process signals from the RF amplifier and local oscillator and send the result to the IF filter in a super-heterodyne receiver?

a) Balanced modulator
b) IF amplifier
c) Mixer
d) Detector

Answer: c;

889. What circuit is used to combine signals from the IF amplifier and BFO and send the result to the AF amplifier in a single-sideband receiver?

a) RF oscillator
b) IF filter
c) Balanced modulator
d) Product detector

Answer: d;

890. Which of the following is an advantage of a transceiver controlled by a direct digital synthesizer (DDS)?

a) Wide tuning range and no need for band switching
b) Relatively high power output
c) Relatively low power consumption
d) Variable frequency with the stability of a crystal oscillator

Answer: d;

891. What should be the impedance of a low-pass filter as compared to the impedance of the transmission line into which it is inserted?

a) Substantially higher
b) About the same
c) Substantially lower
d) Twice the transmission line impedance

Answer: b;

892. What is the simplest combination of stages that implement a superheterodyne receiver?

a) RF amplifier, detector, audio amplifier

b) RF amplifier, mixer, IF discriminator
c) HF oscillator, mixer, detector
d) HF oscillator, pre-scaler, audio amplifier

Answer: c;

893. What type of circuit is used in many FM receivers to convert signals coming from the IF amplifier to audio?

a) Product detector
b) Phase inverter
c) Mixer
d) Discriminator

Answer: d;

894. Which of the following is needed for a Digital Signal Processor IF filter?

a) An analog to digital converter
b) A digital to analog converter
c) A digital processor chip
d) All of the these choices are correct

Answer: d;

895. How is Digital Signal Processor filtering accomplished?

a) By using direct signal phasing
b) By converting the signal from analog to digital and using digital processing
c) By differential spurious phasing
d) By converting the signal from digital to analog and taking the difference of mixing products

Answer: b;

896. What is meant by the term "software defined radio" (SDR)?

a) A radio in which most major signal processing functions are performed by software
b) A radio which provides computer interface for automatic logging of band and frequency
c) A radio which uses crystal filters designed using software
d) A computer model which can simulate performance of a radio to aid in the design process

Answer: a;

897. What is the name of the process that changes the envelope of an RF wave to carry information?

a) Phase modulation
b) Frequency modulation
c) Spread spectrum modulation
d) Amplitude modulation

Answer: d;

898. What is the name of the process that changes the phase angle of an RF wave to convey information?

a) Phase convolution
b) Phase modulation
c) Angle convolution
d) Radian inversion

Answer: b;

899. What is the name of the process which changes the frequency of an RF wave to convey information?

a) Frequency convolution
b) Frequency transformation
c) Frequency conversion
d) Frequency modulation

Answer: d;

900. What emission is produced by a reactance modulator connected to an RF power amplifier?

a) Multiplex modulation
b) Phase modulation
c) Amplitude modulation
d) Pulse modulation

Answer: b;

901. What type of modulation varies the instantaneous power level of the RF signal?

a) Frequency shift keying
b) Pulse position modulation
c) Frequency modulation
d) Amplitude modulation

Answer: d;

902. What is one advantage of carrier suppression in a single-sideband phone transmission?

a) Audio fidelity is improved
b) Greater modulation percentage is obtainable with lower distortion
c) The available transmitter power can be used more effectively
d) Simpler receiving equipment can be used

Answer: c;

903. Which of the following phone emissions uses the narrowest frequency bandwidth?

a) Single sideband
b) Double sideband
c) Phase modulation
d) Frequency modulation

Answer: a;

904. Which of the following is an effect of over-modulation?

a) Insufficient audio
b) Insufficient bandwidth
c) Frequency drift
d) Excessive bandwidth

Answer: d;

905. What control is typically adjusted for proper ALC setting on an amateur single sideband transceiver?

a) The RF clipping level
b) Transmit audio or microphone gain
c) Antenna inductance or capacitance
d) Attenuator level

Answer: b;

906. What is meant by flat-topping of a single-sideband phone transmission?

a) Signal distortion caused by insufficient collector current
b) The transmitter's automatic level control is properly adjusted
c) Signal distortion caused by excessive drive
d) The transmitter's carrier is properly suppressed

Answer: c;

907. What happens to the RF carrier signal when a modulating audio signal is applied to an FM transmitter?

a) The carrier frequency changes proportionally to the instantaneous amplitude of the modulating signal
b) The carrier frequency changes proportionally to the amplitude and frequency of the modulating signal
c) The carrier amplitude changes proportionally to the instantaneous frequency of the modulating signal
d) The carrier phase changes proportionally to the instantaneous amplitude of the modulating signal

Answer: a;

908. What signal(s) would be found at the output of a properly adjusted balanced modulator?

a) Both upper and lower sidebands
b) Either upper or lower sideband, but not both
c) Both upper and lower sidebands and the carrier
d) The modulating signal and the unmodulated carrier

Answer: a;

909. What receiver stage combines a 14.250 MHz input signal with a 13.795 MHz oscillator signal to produce a 455 kHz intermediate frequency (IF) signal?

a) Mixer
b) BFO

c) VFO
d) Discriminator

Answer: a;

910. If a receiver mixes a 13.800 MHz VFO with a 14.255 MHz received signal to produce a 455 kHz intermediate frequency (IF) signal, what type of interference will a 13.345 MHz signal produce in the receiver?

a) Quadrature noise
b) Image response
c) Mixer interference
d) Intermediate interference

Answer: b;

911. What is another term for the mixing of two RF signals?

a) Heterodyning
b) Synthesizing
c) Cancellation
d) Phase inverting

Answer: a;

912. What is the name of the stage in a VHF FM transmitter that generates a harmonic of a lower frequency signal to reach the desired operating frequency?

a) Mixer
b) Reactance modulator
c) Pre-emphasis network
d) Multiplier

Answer: d;

913. Why isn't frequency modulated (FM) phone used below 29.5 MHz?

a) The transmitter efficiency for this mode is low
b) Harmonics could not be attenuated to practical levels
c) The wide bandwidth is prohibited by rules
d) The frequency stability would not be adequate

Answer: c;

914. What is the frequency deviation for a 12.21-MHz reactance-modulated oscillator in a 5-kHz deviation, 146.52-MHz FM-phone transmitter?

a) 101.75 Hz
b) 416.7 Hz
c) 5 kHz
d) 60 kHz

Answer: b;

915. Why is it important to know the duty cycle of the data mode you are using when transmitting?

a) To aid in tuning your transmitter
b) Some modes have high duty cycles which could exceed the transmitter's average power rating
c) To allow time for the other station to break in during a transmission
d) All of these choices are correct

Answer: b;

916. Why is it good to match receiver bandwidth to the bandwidth of the operating mode?

a) It is required by rules
b) It minimizes power consumption in the receiver
c) It improves impedance matching of the antenna
d) It results in the best signal to noise ratio

Answer: d;

917. What does the number 31 represent in PSK31?

a) The approximate transmitted symbol rate
b) The version of the PSK protocol
c) The year in which PSK31 was invented
d) The number of characters that can be represented by PSK31

Answer: a;

918. How does forward error correction allow the receiver to correct errors in received data packets?

a) By controlling transmitter output power for optimum signal strength
b) By using the varicode character set
c) By transmitting redundant information with the data
d) By using a parity bit with each character

Answer: c;

919. What is the relationship between transmitted symbol rate and bandwidth?

a) Symbol rate and bandwidth are not related
b) Higher symbol rates require higher bandwidth
c) Lower symbol rates require higher bandwidth
d) Bandwidth is constant for data mode signals

Answer: c;

920. Which of the following factors determine the characteristic impedance of a parallel conductor antenna feed line?

a) The distance between the centers of the conductors and the radius of the conductors
b) The distance between the centers of the conductors and the length of the line
c) The radius of the conductors and the frequency of the signal
d) The frequency of the signal and the length of the line

Answer: a;

921. What are the typical characteristic impedances of coaxial cables used for antenna feed lines at amateur stations?

a) 25 and 30 ohms
b) 50 and 75 ohms
c) 80 and 100 ohms
d) 500 and 750 ohms

Answer: b;

922. What is the characteristic impedance of flat ribbon TV type twin lead?

a) 50 ohms
b) 75 ohms
c) 100 ohms
d) 300 ohms

Answer: d;

923. What is the reason for the occurrence of reflected power at the point where a feed line connectsto an antenna?

a) Operating an antenna at its resonant frequency
b) Using more transmitter power than the antenna can handle
c) A difference between feed-line impedance and antenna feed-point impedance
d) Feeding the antenna with unbalanced feed line

Answer: c;

924. How does the attenuation of coaxial cable change as the frequency of the signal it is carrying increases?

a) It is independent of frequency
b) It increases
c) It decreases
d) It reaches a maximum at approximately 18 MHz

Answer: b;

925. In what values are RF feed line losses usually expressed?

a) ohms per 1000 ft
b) dB per 1000 ft
c) ohms per 100 ft
d) dB per 100 ft

Answer: d;

926. What must be done to prevent standing waves on an antenna feed line?

a) The antenna feed point must be at DC ground potential
b) The feed line must be cut to an odd number of electrical quarter wavelengths long
c) The feed line must be cut to an even number of physical half wavelengths long
d) The antenna feed-point impedance must be matched to the characteristic impedance of the feed line

Answer: d;

927. If the SWR on an antenna feed line is 5 to 1, and a matching network at the transmitter end of the feed line is adjusted to 1 to 1 SWR, what is the resulting SWR on the feed line?

a) 1 to 1
b) 5 to 1
c) Between 1 to 1 and 5 to 1 depending on the characteristic impedance of the line
d) Between 1 to 1 and 5 to 1 depending on the reflected power at the transmitter

Answer: b;

928. What standing wave ratio will result from the connection of a 50-ohm feed line to a non-reactive load having a 200-ohm impedance?

a) 4:1
b) 1:4
c) 2:1
d) 1:2

Answer: d;

929. What standing wave ratio will result from the connection of a 50-ohm feed line to a non-reactive load having a 10-ohm impedance?

a) 2:1
b) 50:1
c) 1:5
d) 5:1

Answer: d;

930. What standing wave ratio will result from the connection of a 50-ohm feed line to a non-reactive load having a 50-ohm impedance?

a) 2:1
b) 1:1
c) 50:50
d) 0:0

Answer: b;

931. What would be the SWR if you feed a vertical antenna that has a 25-ohm feed-point impedance with 50-ohm coaxial cable?

a) 2:1
b) 2.5:1
c) 1.25:1
d) You cannot determine SWR from impedance values

Answer: a;

932. What would be the SWR if you feed an antenna that has a 300-ohm feed-point impedance with 50-ohm coaxial cable?

a) 1.5:1
b) 3:1
c) 6:1
d) You cannot determine SWR from impedance values

Answer: c;

933. What is one disadvantage of a directly fed random-wire antenna?

a) It must be longer than 1 wavelength
b) You may experience RF burns when touching metal objects in your station
c) It produces only vertically polarized radiation
d) It is not effective on the higher HF bands

Answer: b;

934. What is an advantage of downward sloping radials on a quarter wave ground-plane antenna?

a) They lower the radiation angle
b) They bring the feed-point impedance closer to 300 ohms
c) They increase the radiation angle
d) They bring the feed-point impedance closer to 50 ohms

Answer: d;

935. What happens to the feed-point impedance of a ground-plane antenna when its radials are changed from horizontal to downward-sloping?

a) It decreases
b) It increases
c) It stays the same
d) It reaches a maximum at an angle of 45 degrees

Answer: b;

936. Where should the radial wires of a ground-mounted vertical antenna system be placed?

a) As high as possible above the ground
b) Parallel to the antenna element
c) On the surface or buried a few inches below the ground
d) At the top of the antenna

Answer: d;

937. Which of the following is an advantage of a horizontally polarized as compared to vertically polarized HF antenna?

a) Lower ground reflection losses
b) Lower feed-point impedance
c) Shorter Radials
d) Lower radiation resistance

Answer: a;

938. What is the approximate length for a 1/2-wave dipole antenna cut for 14.250 MHz?

a) 8 feet
b) 16 feet
c) 24 feet
d) 32 feet

Answer: d;

939. What is the approximate length for a 1/2-wave dipole antenna cut for 3.550 MHz?

a) 42 feet
b) 84 feet
c) 131 feet
d) 263 feet

Answer: c;

940. What is the approximate length for a 1/4-wave vertical antenna cut for 28.5 MHz?

a) 8 feet
b) 11 feet
c) 16 feet
d) 21 feet

Answer: a;

941. Which of the following would increase the bandwidth of a Yagi antenna?

a) Larger diameter elements
b) Closer element spacing
c) Loading coils in series with the element
d) Tapered-diameter elements

Answer: a;

942. What is the approximate length of the driven element of a Yagi antenna?

a) 1/4 wavelength
b) 1/2 wavelength
c) 3/4 wavelength
d) 1 wavelength

Answer: b;

943. Which statement about a three-element, single-band Yagi antenna is true?

a) The reflector is normally the shortest parasitic element
b) The director is normally the shortest parasitic element
c) The driven element is the longest parasitic element
d) Low feed-point impedance increases bandwidth

Answer: b;

944. Which statement about a three-element; single-band Yagi antenna is true?

a) The reflector is normally the longest parasitic element
b) The director is normally the longest parasitic element
c) The reflector is normally the shortest parasitic element
d) All of the elements must be the same length

Answer: a;

945. How does increasing boom length and adding directors affect a Yagi antenna?

a) Gain increases
b) Beamwidth increases
c) Weight decreases
d) Wind load decreases

Answer: a;

946. Which of the following is a reason why a Yagi antenna is often used for radio communications on the 20 meter band?

a) It provides excellent omnidirectional coverage in the horizontal plane
b) It is smaller, less expensive and easier to erect than a dipole or vertical antenna
c) It helps reduce interference from other stations to the side or behind the antenna
d) It provides the highest possible angle of radiation for the HF bands

Answer: c;

947. Which of the following is a Yagi antenna design variable that could be adjusted to optimize forward gain, front-to-back ratio, or SWR bandwidth?

a) The physical length of the boom
b) The number of elements on the boom
c) The spacing of each element along the boom
d) All of these choices are correct

Answer: d;

948. What is the purpose of a gamma match used with Yagi antennas?

a) To match the relatively low feed-point impedance to 50 ohms
b) To match the relatively high feed-point impedance to 50 ohms
c) To increase the front to back ratio
d) To increase the main lobe gain

Answer: a;

949. Which of the following is an advantage of using a gamma match for impedance matching of a Yagi antenna to 50-ohm coax feed line?

a) It does not require that the elements be insulated from the boom
b) It does not require any inductors or capacitors
c) It is useful for matching multiband antennas
d) All of these choices are correct

Answer: a;

950. Approximately how long is each side of a quad antenna driven element?

a) 1/4 wavelength
b) 1/2 wavelength
c) 3/4 wavelength
d) 1 wavelength

Answer: a;

951. How does the forward gain of a two-element quad antenna compare to the forward gain of a three-element Yagi antenna?

a) About 2/3 as much
b) About the same
c) About 1.5 times as much
d) About twice as much

Answer: b;

952. Approximately how long is each side of a quad antenna reflector element?

a) Slightly less than 1/4 wavelength
b) Slightly more than 1/4 wavelength
c) Slightly less than 1/2 wavelength
d) Slightly more than 1/2 wavelength

Answer: b;

953. How does the gain of a two-element delta-loop beam compare to the gain of a two-element quad antenna?

a) 3 dB higher
b) 3 dB lower
c) 2.54 dB higher
d) About the same

Answer: d;

954. Approximately how long is each leg of a symmetrical delta-loop antenna?

a) 1/4 wavelength
b) 1/3 wavelength
c) 1/2 wavelength
d) 2/3 wavelength

Answer: b;

955. What happens when the feed point of a quad antenna is changed from the center of either horizontal wire to the center of either vertical wire?

a) The polarization of the radiated signal changes from horizontal to vertical
b) The polarization of the radiated signal changes from vertical to horizontal
c) The direction of the main lobe is reversed
d) The radiated signal changes to an omnidirectional pattern

Answer: a;

956. What configuration of the loops of a two-element quad antenna must be used for the antenna to operate as a beam antenna, assuming one of the elements is used as a reflector?

a) The driven element must be fed with a balun transformer
b) The driven element must be open-circuited on the side opposite the feed point
c) The reflector element must be approximately 5% shorter than the driven element
d) The reflector element must be approximately 5% longer than the driven element

Answer: d;

957. How does the gain of two 3-element horizontally polarized Yagi antennas spaced vertically 1/2 wavelength apart typically compare to the gain of a single 3-element Yagi?

a) Approximately 1.5 dB higher
b) Approximately 3 dB higher
c) Approximately 6 dB higher
d) Approximately 9 dB higher

Answer: b;

958. What does the term "NVIS" mean as related to antennas?

a) Nearly Vertical Inductance System
b) Non-Visible Installation Specification
c) Non-Varying Impedance Smoothing
d) Near Vertical Incidence Sky wave

Answer: d;

959. Which of the following is an advantage of an NVIS antenna?

a) Low vertical angle radiation for working stations out to ranges of several thousand kilometers
b) High vertical angle radiation for working stations within a radius of a few hundred kilometers
c) High forward gain
d) All of these choices are correct

Answer: b;

960. At what height above ground is an NVIS antenna typically installed?

a) As close to one-half wave as possible
b) As close to one wavelength as possible
c) Height is not critical as long as it is significantly more than 1/2 wavelength
d) Between 1/10 and 1/4 wavelength

Answer: d;

961. What is the advantage of vertical stacking of horizontally polarized Yagi antennas?

a) Allows quick selection of vertical or horizontal polarization
b) Allows simultaneous vertical and horizontal polarization

c) Narrows the main lobe in azimuth
d) Narrows the main lobe in elevation

Answer: d;

962. Which of the following is an advantage of a log periodic antenna?

a) Wide bandwidth
b) Higher gain per element than a Yagi antenna
c) Harmonic suppression
d) Polarization diversity

Answer: a;

963. Which of the following describes a log periodic antenna?

a) Length and spacing of the elements increases logarithmically from one end of the boom to the other
b) Impedance varies periodically as a function of frequency
c) Gain varies logarithmically as a function of frequency
d) SWR varies periodically as a function of boom length

Answer: a;

964. Why is a Beverage antenna not used for transmitting?

a) Its impedance is too low for effective matching
b) It has high losses compared to other types of antennas
c) It has poor directivity
d) All of these choices are correct

Answer: b;

965. Which of the following is an application for a Beverage antenna?

a) Directional transmitting for low HF bands
b) Directional receiving for low HF bands
c) Portable direction finding at higher HF frequencies
d) Portable direction finding at lower HF frequencies

Answer: b;

966. Which of the following describes a Beverage antenna?

a) A vertical antenna constructed from beverage cans
b) A broad-band mobile antenna
c) A helical antenna for space reception
d) A very long and low directional receiving antenna

Answer: d;

967. Which of the following is a disadvantage of multiband antennas?

a) They present low impedance on all design frequencies
b) They must be used with an antenna tuner

c) They must be fed with open wire line
d) They have poor harmonic rejection

Answer: d;

968. What is one way that RF energy can affect human body tissue?

a) It heats body tissue
b) It causes radiation poisoning
c) It causes the blood count to reach a dangerously low level
d) It cools body tissue

Answer: a;

969. Which of the following properties is important in estimating whether an RF signal exceeds the maximum permissible exposure (MPE)?

a) Its duty cycle
b) Its frequency
c) Its power density
d) All of these choices are correct

Answer: d;

970. What type of instrument can be used to accurately measure an RF field?

a) A receiver with an S meter
b) A calibrated field-strength meter with a calibrated antenna
c) A betascope with a dummy antenna calibrated at 50 ohms
d) An oscilloscope with a high-stability crystal marker generator

Answer: b;

971. What should be done by any person preparing to climb a tower that supports electrically powered devices?

a) Notify the electric company that a person will be working on the tower
b) Make sure all circuits that supply power to the tower are locked out and tagged
c) Unground the base of the tower
d) All of these choices are correct

Answer: b;

972. Why should soldered joints not be used with the wires that connect the base of a tower to a system of ground rods?

a) The resistance of solder is too high
b) Solder flux will prevent a low conductivity connection
c) Solder has too high a dielectric constant to provide adequate lightning protection
d) A soldered joint will likely be destroyed by the heat of a lightning strike

Answer: d;

973. Which of the following is good engineering practice for lightning protection grounds?

a) They must be bonded to all buried water and gas lines
b) Bends in ground wires must be made as close as possible to a right angle
c) Lightning grounds must be connected to all ungrounded wiring
d) They must be bonded together with all other grounds

Answer: d;

974. What must you do when powering your house from an emergency generator?

a) Disconnect the incoming utility power feed
b) Insure that the generator is not grounded
c) Insure that all lightning grounds are disconnected
d) All of these choices are correct

Answer: a;

975. What safety equipment should always be included in home-built equipment that is powered from 120V AC power circuits?

a) A fuse or circuit breaker in series with the AC hot conductor
b) An AC voltmeter across the incoming power source
c) An inductor in series with the AC power source
d) A capacitor across the AC power source

Answer: a;

976. What kind of hazard is presented by a conventional 12-volt storage battery?

a) It emits ozone which can be harmful to the atmosphere
b) Shock hazard due to high voltage
c) Explosive gas can collect if not properly vented
d) All of these choices are correct

Answer: c;

977. What kind of hazard might exist in a power supply when it is turned off and disconnected?

a) Static electricity could damage the grounding system
b) Circulating currents inside the transformer might cause damage
c) The fuse might blow if you remove the cover
d) You might receive an electric shock from the charged stored in large capacitors

Answer: d;

978. Which of the following is true concerning grounding conductors used for lightning protection?

a) Only non-insulated wire must be used
b) Wires must be carefully routed with precise right-angle bends
c) Sharp bends must be avoided
d) Common grounds must be avoided

Answer: c;

979. Which of the following establishes grounding requirements for an amateur radio tower or antenna?

a) FCC Part 97 Rules
b) Local electrical codes
c) FAA tower lighting regulations
d) Underwriters Laboratories' recommended practices

Answer: b;

980. What type of radiation are VHF and UHF radio signals?

a) Gamma radiation
b) Ionizing radiation
c) Alpha radiation
d) Non-ionizing radiation

Answer: d;

981. Which of the following frequencies has the lowest value for Maximum Permissible Exposure limit?

a) 3.5 MHz
b) 50 MHz
c) 440 MHz
d) 1296 MHz

Answer: b;

982. What is the maximum power level that an amateur radio station may use at VHF frequencies before an RF exposure evaluation is required?

a) 1500 watts PEP transmitter output
b) 1 watt forward power
c) 50 watts PEP at the antenna
d) 50 watts PEP reflected power

Answer: c;

983. What factors affect the RF exposure of people near an amateur station antenna?
a) Frequency and power level of the RF field
b) Distance from the antenna to a person
c) Radiation pattern of the antenna
d) All of these choices are correct

Answer: d;

984. Why do exposure limits vary with frequency?

a) Lower frequency RF fields have more energy than higher frequency fields
b) Lower frequency RF fields do not penetrate the human body
c) Higher frequency RF fields are transient in nature
d) The human body absorbs more RF energy at some frequencies than at others

Answer: d;

985. What could happen if a person accidentally touched your antenna while you were transmitting?

a) Touching the antenna could cause television interference
b) They might receive a painful RF burn
c) They might develop radiation poisoning
d) All of these choices are correct

Answer: b;

986. Why is duty cycle one of the factors used to determine safe RF radiation exposure levels?

a) It affects the average exposure of people to radiation
b) It affects the peak exposure of people to radiation
c) It takes into account the antenna feed line loss
d) It takes into account the thermal effects of the final amplifier

Answer: a;

987. What is the definition of duty cycle during the averaging time for RF exposure?

a) The difference between the lowest power output and the highest power output of a transmitter
b) The difference between the PEP and average power output of a transmitter
c) The percentage of time that a transmitter is transmitting
d) The percentage of time that a transmitter is not transmitting

Answer: c;

988. How does RF radiation differ from ionizing radiation (radioactivity)?

a) RF radiation does not have sufficient energy to cause genetic damage
b) RF radiation can only be detected with an RF dosimeter
c) RF radiation is limited in range to a few feet
d) RF radiation is perfectly safe

Answer: a;

989. If the averaging time for exposure is 6 minutes, how much power density is permitted if the signal is present for 3 minutes and absent for 3 minutes rather than being present for the entire 6 minutes?

a) times as much
b) 1/2 as much
c) times as much
d) There is no adjustment allowed for shorter exposure times

Answer: c;

990. What safety equipment should always be included in home-built equipment that is powered from 220V AC power circuits?

a) A fuse or circuit breaker in series with the AC hot conductor
b) An AC voltmeter across the incoming power source
c) An inductor in series with the AC power source

d) A capacitor across the AC power source

Answer: a;

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d) Attenuator level

Answer: b;

997. What type of modulation varies the instantaneous power level of the RF signal?

a) Frequency shift keying
b) Pulse position modulation
c) Frequency modulation
d) Amplitude modulation

Answer: d;

998. Which of the following is a characteristic of a Class A amplifier?

a) Low standby power
b) High Efficiency
c) No need for bias
d) Low distortion

Answer: d;

999. Which of the following is an advantage of using the binary system when processing digital signals?

a) Binary "ones" and "zeros" are easy to represent with an "on" or"off" state
b) The binary number system is most accurate
c) Binary numbers are more compatible with analog circuitry
d) All of these choices are correct

Answer: a;

1000. Which of the following describes the function of a two input AND gate?

a) Output is high when either or both inputs are low
b) Output is high only when both inputs are high
c) Output is low when either or both inputs are high
d) Output is low only when both inputs are high

Answer: b;

1001. Which of the following describes the function of a two input NOR gate?

a) Output is high when either or both inputs are low
b) Output is high only when both inputs are high
c) Output is low when either or both inputs are high
d) Output is low only when both inputs are high

Answer: c;

1002. Complex digital circuitry can often be replaced by what type of integrated circuit?

a) Microcontroller
b) Charge-coupled device
c) Phase detector

d) Window comparator

Answer: a;

1003. What portion of the AC cycle is converted to DC by a full-wave rectifier?

a) 90 degrees
b) 180 degrees
c) 270 degrees
d) 360 degrees

Answer: d;

1004. Which of the following components are used in a power-supply filter network?

a) Diodes
b) Transformers and transducers
c) Quartz crystals
d) Capacitors and inductors

Answer: d;

1005. How is an LED biased when emitting light?

a) Beyond cutoff
b) At the Zener voltage
c) Reverse Biased
d) Forward Biased

Answer: d;

1006. What is one disadvantage of an incandescent indicator compared to an LED?

a) Low power consumption
b) High speed
c) Long life
d) High power consumption

Answer: d;

1007. What is meant by the term ROM?

a) Resistor Operated Memory
b) Read Only Memory
c) Random Operational Memory
d) Resistant to Overload Memory

Answer: b;

1008. Which of the following is an analog integrated circuit?

a) NAND Gate
b) Microprocessor
c) Frequency Counter
d) Linear voltage regulator

Answer: d;

1009. Which of the following describes the construction of a MOSFET?

a) The gate is formed by a back-biased junction
b) The gate is separated from the channel with a thin insulating layer
c) The source is separated from the drain by a thin insulating layer
d) The source is formed by depositing metal on silicon

Answer: b;

1010. Why must the cases of some large power transistors be insulated from ground?

a) To increase the beta of the transistor
b) To improve the power dissipation capability
c) To reduce stray capacitance
d) To avoid shorting the collector or drain voltage to ground

Answer: d;

1011. When two or more diodes are connected in parallel to increase current handling capacity, what is the purpose of the resistor connected in series with each diode?

a) To ensure the thermal stability of the power supply
b) To regulate the power supply output voltage
c) To ensure that one diode doesn't carry most of the current
d) To act as an inductor

Answer: c;

1012. Why would it be important to minimize the mutual inductance between two inductors?

a) To increase the energy transfer between circuits
b) To reduce unwanted coupling between circuits
c) To reduce conducted emissions
d) To increase the self-resonant frequency of the inductors

Answer: c;

1013. What is an advantage of using a ferrite core toroidal inductor?

a) Large values of inductance may be obtained
b) The magnetic properties of the core may be optimized for a specific range of frequencies
c) Most of the magnetic field is contained in the core
d) All of these choices are correct

Answer: d;

1014. Which of the following is an advantage of an electrolytic capacitor?

a) Tight tolerance
b) Non-polarized
c) High capacitance for given volume
d) Inexpensive RF capacitor

Answer: c;

1015. Which of the following types of capacitors are often used in power supply circuits to filter the rectified AC?

a) Disc ceramic
b) Vacuum variable
c) Mica
d) Electrolytic

Answer: d;

1016. Which of the following components should be added to an inductor to increase the inductance?

a) A capacitor in series
b) A resistor in parallel
c) An inductor in parallel
d) An inductor in series

Answer: d;

1017. Which of the following components should be added to a capacitor to increase the capacitance?

a) An inductor in series
b) A resistor in series
c) A capacitor in parallel
d) A capacitor in series

Answer: c;

1018. Which part of a transformer is normally connected to the incoming source of energy?

a) The secondary
b) The primary
c) The core
d) The plates

Answer: b;

1019. When calling another station how often should the call sign of the station being called be given?

a) Five times
b) Three times
c) Two times
d) Four times

Answer: b;

1020. When using a repeater on VHF it is good practice to:

a) Use simplex and tell the other stations they are weak and you don't hear them at all
b) Use maximum power and call until someone answers
c) Use the duplex mode, and call on the input frequency and listen on the output frequency
d) Use repeater reverse and hope for the best

Answer: c;

1021. When operating on any Amateur Radio band one should:

a) Operate wherever is convenient and unoccupied
b) Use Lower Sideband in the Upper Sideband portion
c) Follow the accepted Band Plan for the band being used
d) Use CW in the phone portion if the band is clear

Answer: c;

1022. It is good practice when using a repeater:

a) To use an inefficient antenna
b) To use a faulty microphone
c) To use a radio set that over deviates
d) To be polite and allow other stations to join into the conversation

Answer: d;

1023. Which frequency is within the 6 meter band?

a) 49.00 MHz
b) 52.525 MHz
c) 28.50 MHz
d) 222.15 MHz

Answer: b;

1024. Which amateur band is being used when the station is transmitting on 146.52MHz?

a) meter band
b) 20 meter band
c) 14 meter band
d) 6 meter band

Answer: a;

1025. Why should you not set your transmit frequency to be exactly at the edge of an amateur band or sub-band?

a) To allow for calibration error in the transmitter frequency display
b) So that modulation sidebands do not extend beyond the band edge
c) To allow for transmitter frequency drift
d) All of these choices are correct

Answer: d;

1026. What emission modes are permitted in the mode-restricted sub-bands at 50.0 to 50.1 MHz and 144.0 to 144.1 MHz?

a) CW only
b) CW and RTTY
c) SSB only

d) CW and SSB

Answer: a;

1027. Which emission may be used between 219 and 220 MHz?

a) Spread spectrum
b) Data
c) SSB voice
d) Fast-scan television

Answer: b;

1028. Which type of call sign has a single letter in both its prefix and suffix?

a) Vanity
b) Sequential
c) Special event
d) In-memoriam

Answer: c;

1029. When are you allowed to operate your amateur station in a foreign country?

a) When the foreign country authorizes it
b) When there is a mutual agreement allowing third party communications
c) When authorization permits amateur communications in a foreign language
d) When you are communicating with non-licensed individuals in another country

Answer: a;

1030. What is an appropriate way to call another station on a repeater if you know the other station's call sign?

a) Say break, break then say the station's call sign
b) Say the station's call sign then identify with your call sign
c) Say CQ three times then the other station's call sign
d) Wait for the station to call CQ then answer it

Answer: b;

1031. How should you respond to a station calling CQ?

a) Transmit CQ followed by the other station's call sign
b) Transmit your call sign followed by the other station's call sign
c) Transmit the other station's call sign followed by your call sign
d) Transmit a signal report followed by your call sign

Answer: c;

1032. Which of the following is true when making a test transmission?

a) Station identification is not required if the transmission is less than 15 seconds
b) Station identification is not required if the transmission is less than 1 watt

c) Station identification is only required once an hour when the transmissions are for test purposes only
d) Station identification is required at least every ten minutes during the test and at the end of the test

Answer: d;

1033. What determines the amount of deviation of an FM (as opposed to PM) signals?

a) Both the frequency and amplitude of the modulating signal
b) The frequency of the modulating signal
c) The amplitude of the modulating signal
d) The relative phase of the modulating signal and the carrier

Answer: c;

1034. Under what circumstances should you consider communicating via simplex rather than a repeater?

a) When the stations can communicate directly without using a repeater
b) Only when you have an endorsement for simplex operation on your license
c) Only when third party traffic is not being passed
d) Only if you have simplex modulation capability

Answer: a;

1035. What do RACES and ARES have in common?

a) They represent the two largest ham clubs in the United States
b) Both organizations broadcast road and weather information
c) Neither may handle emergency traffic supporting public service agencies
d) Both organizations may provide communications during emergencies

Answer: d;

1036. What happens when the deviation of an FM transmitter is increased?

a) Its signal occupies more bandwidth
b) Its output power increases
c) Its output power and bandwidth increases
d) Asymmetric modulation occurs

Answer: a;

1037. What is the meaning of the procedural signal "CQ"?

a) Call on the quarter hour
b) A new antenna is being tested (no station should answer)
c) Only the called station should transmit
d) Calling any station

Answer: d;

1038. Which Q signal indicates that you are receiving interference from other stations?

a) QRM
b) QRN
c) QTH
d) QSB

Answer: a;

1039. What brief statement is often transmitted in place of "CQ" to indicate that you are listening ona repeater?

a) The words "Hello test" followed by your call sign
b) Your call sign
c) The repeater call sign followed by your call sign
d) The letters "QSY" followed by your call sign

Answer: b;

1040. Which of the following describes the Radio Amateur Civil Emergency Service (RACES)?

a) A radio service using amateur frequencies for emergency management or civil defense communications
b) A radio service using amateur stations for emergency management or civil defense communications
c) An emergency service using amateur operators certified by a civil defense organization as being enrolled in that organization
d) All of these choices are correct

Answer: d;

1041. Which of the following is a characteristic of good emergency traffic handling?

a) Passing messages exactly as received
b) Making decisions as to whether or not messages should be relayed or delivered
c) Communicating messages to the news media for broadcast outside the disaster area
d) All of these choices are correct

Answer: a;

1042. What is the term used to describe an amateur station that is transmitting and receiving on the same frequency?

a) Full duplex communication
b) Diplex communication
c) Simplex communication
d) Multiplex communication

Answer: c;

1043. What is the Amateur Radio Emergency Service (ARES)?

a) Licensed amateurs who have voluntarily registered their qualifications and equipment for communications duty in the public service
b) Licensed amateurs who are members of the military and who voluntarily agreed to provide message handling services in the case of an emergency

c) A training program that provides licensing courses for those interested in obtaining an amateur license to use during emergencies
d) A training program that certifies amateur operators for membership in the Radio Amateur Civil Emergency Service

Answer: a;

1044. Which part of the atmosphere enables the propagation of radio signals around the world?

a) The stratosphere
b) The troposphere
c) The ionosphere
d) The magnetosphere

Answer: c;

1045. What antenna polarization is normally used for long-distance weak-signal CW and SSB contacts using the VHF and UHF bands?

a) Right-hand circular
b) Left-hand circular
c) Horizontal
d) Vertical

Answer: c;

1046. What are the two components of a radio wave?

a) AC and DC
b) Voltage and current
c) Electric and magnetic fields
d) Ionizing and non-ionizing radiation

Answer: c;

1047. Why are UHF signals often more effective from inside buildings than VHF signals?

a) VHF signals lose power faster over distance
b) The shorter wavelength allows them to more easily penetrate the structure of buildings
c) This is incorrect; VHF works better than UHF inside buildings
d) UHF antennas are more efficient than VHF antennas

Answer: b;

1048. Which of the following might be happening when VHF signals are being received from long distances?

a) Signals are being reflected from outer space
b) Signals are arriving by sub-surface ducting
c) Signals are being reflected by lightning storms in your area
d) Signals are being refracted from a sporadic E layer

Answer: d;

1049. How does the wavelength of a radio wave relate to its frequency?

a) The wavelength gets longer as the frequency increases
b) The wavelength gets shorter as the frequency increases
c) There is no relationship between wavelength and frequency
d) The wavelength depends on the bandwidth of the signal

Answer: b;

1050. What type of wave carries radio signals between transmitting and receiving stations?

a) Electromagnetic
b) Electrostatic
c) Surface acoustic
d) Magnetostrictive

Answer: a;

1051. Which of the following is a likely cause of irregular fading of signals received by ionospheric reflection?

a) Frequency shift due to Faraday rotation
b) Interference from thunderstorms
c) Random combining of signals arriving via different paths
d) Intermodulation distortion

Answer: C;

1052. What is the preamble in a formal traffic message?

a) The first paragraph of the message text
b) The message number
c) The priority handling indicator for the message
d) The information needed to track the message as it passes through the amateur radiotraffic handling system

Answer: d;

1053. What is generally the best time for long-distance 10 meter band propagation via the F layer?

a) From dawn to shortly after sunset during periods of high sunspot activity
b) From shortly after sunset to dawn during periods of high sunspot activity
c) From dawn to shortly after sunset during periods of low sunspot activity
d) From shortly after sunset to dawn during periods of low sunspot activity

Answer: a;

1054. What may happen if a transmitter is operated with the microphone gain set too high?

a) The output power might be too high
b) The output signal might become distorted
c) The frequency might vary
d) The SWR might increase

Answer: b;

1055. Where should an in-line SWR meter be connected to monitor the standing wave ratio of the station antenna system?

a) In series with the feed line, between the transmitter and antenna
b) In series with the station's ground
c) In parallel with the push-to-talk line and the antenna
d) In series with the power supply cable, as close as possible to the radio

Answer: a;

1056. Which of the following is an appropriate receive filter bandwidth to select in order tominimize noise and interference for CW reception?

a) 500 Hz
b) 1000 Hz
c) 2400 Hz
d) 5000 Hz

Answer: a;

1057. Which of the following effects might cause radio signals to be heard despite obstructions between the transmitting and receiving stations?

a) Knife-edge diffraction
b) Faraday rotation
c) Quantum tunneling
d) Doppler shift

Answer: a;

1058. Which of the following could you use to cure distorted audio caused by RF current flowing on the shield of a microphone cable?

a) Band-pass filter
b) Low-pass filter
c) Preamplifier
d) Ferrite choke

Answer: d;

1059. What is the electrical term for the electromotive force (EMF) that causes electron flow?

a) Voltage
b) Ampere-hours
c) Capacitance
d) Inductance

Answer: a;

1060. Which is a good reason to use a regulated power supply for communications equipment?

a) It prevents voltage fluctuations from reaching sensitive circuits
b) A regulated power supply has FCC approval
c) A fuse or circuit breaker regulates the power
d) Power consumption is independent of load

Answer: a;

1061. Which type of conductor is best to use for RF grounding?

a) Round stranded wire
b) Round copper-clad steel wire
c) Twisted-pair cable
d) Flat strap

Answer: d;

1062. What is the radio horizon?

a) The distance over which two stations can communicate by direct path
b) The distance from the ground to a horizontally mounted antenna
c) The farthest point you can see when standing at the base of your antenna tower
d) The shortest distance between two points on the Earth's surface

Answer: a;

1063. What is one way that RF energy can affect human body tissue?

a) It heats body tissue
b) It causes radiation poisoning
c) It causes the blood count to reach a dangerously low level
d) It cools body tissue

Answer: b;

1064. What are the three electrodes of a field effect transistor?

a) Source, gate, and drain
b) Cathode, grid, and plate
c) Cathode, gate, and anode
d) Emitter, base, and collector

Answer: d;

1065. What is an amateur station control point?

a) The location of the station's transmitting antenna
b) The location at which the control operator function is performed
c) The location of the station transmitting apparatus
d) The mailing address of the station licensee

Answer: a;

1066. What is the name of a device that combines several semiconductors and other components into one package?

a) Integrated circuit
b) Transformer

c) Multi-pole relay
d) Transducer

Answer: a;

1067. What precaution should you take whenever you make adjustments or repairs to an antenna?

a) Ensure that you and the antenna structure are grounded
b) Turn off the transmitter and disconnect the feed line
c) Wear a radiation badge
d) All of these choices are correct

Answer: d;

1068. In what ITU region is operation in the 7.175 to 7.300 MHz band permitted for a control operator holding an FCC issued General Class license?

a) Region 1
b) Region 2
c) Region 3
d) All three regions

Answer: d;

1069. What name is given to an amateur radio station that is used to connect other amateur stations to the Internet?

a) gateway
b) repeater
c) digipeater
d) beacon

Answer: a;

1070. Which of the following services are protected from interference by amateur signals under all circumstances?

a) Citizens Radio Service
b) Broadcast Service
c) Land Mobile Radio Service
d) Radio navigation Service

Answer: d;

1071. Which of the following entities recommends transmit/receive channels and other parameters for auxiliary and repeater stations?

a) Frequency Spectrum Manager
b) Frequency Coordinator
c) FCC Regional Field Office
d) International Telecommunications Union

Answer: b;

1072. When is willful interference to other amateur radio stations permitted?

a) Only if the station being interfered with is expressing extreme religious or political views
b) At no time
c) Only during a contest
d) At any time, amateurs are not protected from willful interference

Answer: b;

1073. Which of the following is a permissible use of the Amateur Radio Service?

a) Broadcasting music and videos to friends
b) Providing a way for amateur radio operators to earn additional income by using their stations to pass messages
c) Providing low-cost communications for start-up businesses
d) Allowing a person to conduct radio experiments and to communicate with other licensed hams around the world

Answer: d;

1074. Which type of call sign has a single letter in both its prefix and suffix?

a) Vanity
b) Sequential
c) Special event
d) In-memoriam

Answer: c;

1075. What types of international communications are permitted by an FCC-licensed amateur station?

a) Communications incidental to the purposes of the amateur service and remarks of a personal character
b) Communications incidental to conducting business or remarks of a personal nature
c) Only communications incidental to contest exchanges, all other communications are prohibited
d) Any communications that would be permitted by an international broadcast station

Answer: a;

1076. When are you allowed to operate your amateur station in a foreign country?

a) When the foreign country authorizes it
b) When there is a mutual agreement allowing third party communications
c) When authorization permits amateur communications in a foreign language
d) When you are communicating with non-licensed individuals in another country

Answer: a;

1077. Who may select a vanity call sign for a club station?

a) Any Extra Class member of the club

b) Any member of the club
c) Any officer of the club
d) Only the person named as trustee on the club station license grant

Answer: d;

1078. When is the transmission of codes or ciphers that hide the meaning of a message allowed by an amateur station?

a) Only during contests
b) Only when operating mobile
c) Only when transmitting control commands to space stations or radio control craft
d) Only when frequencies above 1280 MHz are used

Answer: c;

1079. What is the only time an amateur station is authorized to transmit music?

a) When incidental to an authorized retransmission of manned spacecraft communications
b) When the music produces no spurious emissions
c) When the purpose is to interfere with an illegal transmission
d) When the music is transmitted above 1280 MHz

Answer: c;

1080. In which of the following circumstances may the control operator of an amateur station receive compensation for operating the station?

a) When engaging in communications on behalf of their employer
b) When the communication is incidental to classroom instruction at an educational institution
c) When re-broadcasting weather alerts during a RACES net
d) When notifying other amateur operators of the availability for sale or trade of apparatus

Answer: b;

1081. When may an amateur station transmit without identifying?

a) When the transmissions are of a brief nature to make station adjustments
b) When the transmissions are unmodulated
c) When the transmitted power level is below 1 watt
d) When transmitting signals to control a model craft

Answer: c;

1082. Under which of the following circumstances may an amateur radio station engage in broadcasting?

a) Under no circumstances
b) When transmitting code practice, information bulletins, or transmissions necessaryto provide emergency communications
c) At any time as long as no music is transmitted
d) At any time as long as the material being transmitted did not originate from a commercial broadcast station

Answer: b;

1083. Who must designate the station control operator?

a) The station licensee
b) The FCC
c) The frequency coordinator
d) The ITU

Answer: a;

1084. Under what type of control do APRS network digipeaters operate?

a) Automatic
b) Remote
c) Local
d) Manual

Answer: a;

1085. What type of control is being used when the control operator is at the control point?

a) Radio control
b) Unattended control
c) Automatic control
d) Local control

Answer: c;

1086. Which of the following is an acceptable language to use for station identification when operating in a phone sub-band?

a) Any language recognized by the United Nations
b) Any language recognized by the ITU
c) The English language
d) English, French, or Spanish

Answer: c;

1087. What type of amateur station simultaneously retransmits the signal of another amateur station on a different channel or channels?

a) Beacon station
b) Earth station
c) Repeater station
d) Message forwarding station

Answer: c;

1088. What is meant by the gain of an antenna?

a) The additional power that is added to the transmitter power
b) The additional power that is lost in the antenna when transmitting on a higher frequency

c) The increase in signal strength in a specified direction when compared to a reference antenna
d) The increase in impedance on receive or transmit compared to a reference antenna

Answer: c;

1089. How does RF radiation differ from ionizing radiation (radioactivity)?

a) RF radiation does not have sufficient energy to cause genetic damage
b) RF radiation can only be detected with an RF dosimeter
c) RF radiation is limited in range to a few feet
d) RF radiation is perfectly safe

Answer: a;

1090. What type of transmission is most often used for a ham radio mesh network?

a) Spread spectrum in the 2.4 GHz band
b) Multiple Frequency Shift Keying in the 10 GHz band
c) Store and forward on the 440 MHz band
d) Frequency division multiplex in the 24 GHz band

Answer: a;

1091. What do the letters FEC mean as they relate to digital operation?

a) Forward Error Correction
b) First Error Correction
c) Fatal Error Correction
d) Final Error Correction

Answer: a;

1092. What does the Q signal "QRV" mean?

a) You are sending too fast
b) There is interference on the frequency
c) I am quitting for the day
d) I am ready to receive messages

Answer: d;

1093. Which of the following are objectives of the Amateur Auxiliary?

a) To conduct efficient and orderly amateur licensing examinations
b) To encourage self-regulation and compliance with the rules by radio amateur operators
c) To coordinate repeaters for efficient and orderly spectrum usage
d) To provide emergency and public safety communications

Answer: b;

1094. What information is traditionally contained in a station log?

a) Date and time of contact

b) Band and/or frequency of the contact
c) Call sign of station contacted and the signal report given
d) All of these choices are correct

Answer: c;

1095. Which of the following is a permissible use of the Amateur Radio Service?

a) Broadcasting music and videos to friends
b) Providing a way for amateur radio operators to earn additional income by using their stations to pass messages
c) Providing low-cost communications for start-up businesses
d) Allowing a person to conduct radio experiments and to communicate with other licensed hams around the world

Answer: d;

1096. What emission modes are permitted in the mode-restricted sub-bands at 50.0 to 50.1 MHz and 144.0 to 144.1 MHz?

a) CW only
b) CW and RTTY
c) SSB only
d) CW and SSB

Answer: a;

1097. Which type of call sign has a single letter in both its prefix and suffix?

a) Vanity
b) Sequential
c) Special event
d) In-memoriam

Answer: c;

1098. Who may select a vanity call sign for a club station?

a) Any Extra Class member of the club
b) Any member of the club
c) Any officer of the club
d) Only the person named as trustee on the club station license grant

Answer: d;

1099. What is the minimum safe distance from a power line to allow when installing an antenna?

a) Half the width of your property
b) The height of the power line above ground
c) 1/2 wavelength at the operating frequency
d) So that if the antenna falls unexpectedly, no part of it can come closer than 10 feet to the power wires

Answer: d;

1100. Which of the following is true concerning grounding conductors used for lightning protection?

a) Only non-insulated wire must be used
b) Wires must be carefully routed with precise right-angle bends
c) Sharp bends must be avoided
d) Common grounds must be avoided

Answer: c;

1101. What factors affect the RF exposure of people near an amateur station antenna?

a) Frequency and power level of the RF field
b) Distance from the antenna to a person
c) Radiation pattern of the antenna
d) All of these choices are correct

Answer: c;

1102. Why do exposure limits vary with frequency?

a) Lower frequency RF fields have more energy than higher frequency fields
b) Lower frequency RF fields do not penetrate the human body
c) Higher frequency RF fields are transient in nature
d) The human body absorbs more RF energy at some frequencies than at others

Answer: d;

1103. What could happen if a person accidentally touched your antenna while you were transmitting?

a) Touching the antenna could cause television interference
b) They might receive a painful RF burn
c) They might develop radiation poisoning
d) All of these choices are correct

Answer: b;

1104. What does an antenna tuner do?

a) It matches the antenna system impedance to the transceiver's output impedance
b) It helps a receiver automatically tune in weak stations
c) It allows an antenna to be used on both transmit and receive
d) It automatically selects the proper antenna for the frequency band being used

Answer: a;

1105. What is the impedance of the most commonly used coaxial cable in typical amateur radio installations?

a) 8 ohms
b) 50 ohms
c) 600 ohms
d) 12 ohms

Answer: b;

1106. Which of these precautions should be taken when installing devices for lightning protection in a coaxial cable feed line?

a) Include a parallel bypass switch for each protector so that it can be switched out of the circuit when running high power
b) Include a series switch in the ground line of each protector to prevent RF overload from inadvertently damaging the protector
c) Keep the ground wires from each protector separate and connected to station ground
d) Ground all of the protectors to a common plate which is in turn connected to an external ground

Answer: d;

1107. What is the minimum safe distance from a power line to allow when installing an antenna?

a) Half the width of your property
b) The height of the power line above ground
c) 1/2 wavelength at the operating frequency
d) So that if the antenna falls unexpectedly, no part of it can come closer than 10 feet to the power wires

Answer: d;

1108. 3: Which of the following frequencies has the lowest value for Maximum Permissible Exposure limit?

a) 3.5 MHz
b) 50 MHz
c) 440 MHz
d) 1296 MHz

Answer: b;

1109. Which of the following results from the fact that skip signals refracted from the ionosphere are elliptically polarized?

a) Digital modes are unusable
b) Either vertically or horizontally polarized antennas may be used for transmission or reception
c) FM voice is unusable
d) Both the transmitting and receiving antennas must be of the same polarization

Answer: b;

1110. What property of radio waves is often used to identify the different frequency bands?

a) The approximate wavelength
b) The magnetic intensity of waves

c) The time it takes for waves to travel one mile
d) The voltage standing wave ratio of waves

Answer: a;

1111. What is the radio horizon?

a) The distance over which two stations can communicate by direct path
b) The distance from the ground to a horizontally mounted antenna
c) The farthest point you can see when standing at the base of your antenna tower
d) The shortest distance between two points on the Earth's surface

Answer: a;

1112. Where must a filter be installed to reduce harmonic emissions from your station?

a) Between the transmitter and the antenna
b) Between the receiver and the transmitter
c) At the station power supply
d) At the microphone

Answer: a;

1113. What does the term RIT mean?

a) Receiver Input Tone
b) Receiver Incremental Tuning
c) Rectifier Inverter Test
d) Remote Input Transmitter

Answer: b;

1114. What electrical component is usually composed of a coil of wire?

a) Switch
b) Capacitor
c) Diode
d) Inductor

Answer: d;

1115. What is the term that describes a transistor's ability to amplify a signal?

a) Gain
b) Forward resistance
c) Forward voltage drop
d) On resistance

Answer: a;

1116. What is component 3 in figure T3?

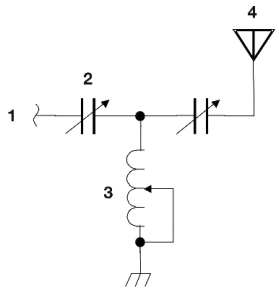

Figure T-3

a) Connector
b) Meter
c) Variable capacitor
d) Variable inductor

Answer: d;

1117. Which of the following devices or circuits changes an alternating current into a varying direct current signal?

a) Transformer
b) Rectifier
c) Amplifier
d) Reflector

Answer: b;

1118. Which of the following is a form of amplitude modulation?

a) Spread-spectrum
b) Packet radio
c) Single sideband
d) Phase shift keying

Answer: c;

1119. What do the initials LEO tell you about an amateur satellite?

a) The satellite battery is in Low Energy Operation mode
b) The satellite is performing a Lunar Ejection Orbit maneuver
c) The satellite is in a Low Earth Orbit
d) The satellite uses Light Emitting Optics

Answer: c;

1120. What popular operating activity involves contacting as many stations as possible during a specified period of time?

a) Contesting
b) Net operations
c) Public service events
d) Simulated emergency exercises

Answer: a;

1121. What is PSK31?

a) A high-rate data transmission mode
b) A method of reducing noise interference to FM signals
c) A method of compressing digital television signals
d) A low-rate data transmission mode

Answer: d;

1122. What is meant by the gain of an antenna?

a) The additional power that is added to the transmitter power
b) The additional power that is lost in the antenna when transmitting on a higher frequency
c) The increase in signal strength in a specified direction when compared to a reference antenna
d) The increase in impedance on receive or transmit compared to a reference antenna

Answer: c;

1123. Which of the following types of feed line has the lowest loss at VHF and UHF?

a) 50-ohm flexible coax
b) Multi-conductor unbalanced cable
c) Air-insulated hard line
d) 75-ohm flexible coax

Answer: c;

1124. Which agency regulates and enforces the rules for the Amateur Radio Service in the Bangladesh?

a) BNRC
b) Secretary
c) BCC
d) BTRC

Answer: d;

1125. Which of the following services are protected from interference by amateur signals under all circumstances?

a) Citizens Radio Service
b) Broadcast Service
c) Land Mobile Radio Service
d) Radio navigation Service

Answer: d;

1126. Which of the following entities recommends transmit/receive channels and other parameters for auxiliary and repeater stations?

a) Frequency Spectrum Manager
b) Frequency Coordinator

c) FCC Regional Field Office
d) International Telecommunications Union

Answer: b;

1127. What is the ITU?

a) An agency of the United States Department of Telecommunications Management
b) A United Nations agency for information and communication technology issues
c) An independent frequency coordination agency
d) A department of the UNO

Answer: b;

1128. Which frequency is within the 6 meter band?

a) 49.00 MHz
b) 52.525 MHz
c) 28.50 MHz
d) 222.15 MHz

Answer: b;

1129. Which amateur band are you using when your station is transmitting on 146.52 MHz?

a) 2 meter band
b) 20 meter band
c) 14 meter band
d) 6 meter band

Answer: b;

1130. When are you allowed to operate your amateur station in a foreign country?

a) When the foreign country authorizes it
b) When there is a mutual agreement allowing third party communications
c) When authorization permits amateur communications in a foreign language
d) When you are communicating with non-licensed individuals in another country

Answer: a;

1131. What type of amateur station simultaneously retransmits the signal of another amateur station on a different channel or channels?

a) Beacon station
b) Earth station
c) Repeater station
d) Message forwarding station

Answer: c;

1132. What happens when the deviation of an FM transmitter is increased?

a) Its signal occupies more bandwidth
b) Its output power increases
c) Its output power and bandwidth increases
d) Asymmetric modulation occurs

Answer: a;

1133. What is the preamble in a formal traffic message?

a) The first paragraph of the message text
b) The message number
c) The priority handling indicator for the message
d) The information needed to track the message as it passes through the amateur radio traffic handling system

Answer: d;

1134. What is the Amateur Radio Emergency Service (ARES)?

a) Licensed amateurs who have voluntarily registered their qualifications and equipment for communications duty in the public service
b) Licensed amateurs who are members of the military and who voluntarily agreed to provide message handling services in the case of an emergency
c) A training program that provides licensing courses for those interested in obtaining an amateur license to use during emergencies
d) A training program that certifies amateur operators for membership in the Radio Amateur Civil Emergency Service

Answer: a;

1135. Why are UHF signals often more effective from inside buildings than VHF signals?

a) VHF signals lose power faster over distance
b) The shorter wavelength allows them to more easily penetrate the structure of buildings
c) This is incorrect; VHF works better than UHF inside buildings
d) UHF antennas are more efficient than VHF antennas

Answer: b;

1136. What type of wave carries radio signals between transmitting and receiving stations?

a) Electromagnetic
b) Electrostatic
c) Surface acoustic
d) Magnetostrictive

Answer: a;

1137. What is the name for the distance a radio wave travels during one complete cycle?

a) Wave speed
b) Waveform
c) Wavelength

d) Wave spread

Answer: c;

1138. What are the two components of a radio wave?

a) AC and DC
b) Voltage and current
c) Electric and magnetic fields
d) Ionizing and non-ionizing radiation

Answer: c;

1139. How fast does a radio wave travel through free space?

a) At the speed of light
b) At the speed of sound
c) Its speed is inversely proportional to its wavelength
d) Its speed increases as the frequency increases

Answer: a;

1140. What are the frequency limits of the VHF spectrum?

a) 30 to 300 kHz
b) 30 to 300 MHz
c) 300 to 3000 kHz
d) 300 to 3000 MHz

Answer: b;

1141. What are the frequency limits of the UHF spectrum?

a) 30 to 300 kHz
b) 30 to 300 MHz
c) 300 to 3000 kHz
d) 300 to 3000 MHz

Answer: d;

1142. What frequency range is referred to as HF?

a) 300 to 3000 MHz
b) 30 to 300 MHz
c) 3 to 30 MHz
d) 300 to 3000 kHz

Answer: c;

1143. What frequency range is referred to as HF?

a) 300 to 3000 MHz
b) 30 to 300 MHz
c) 3 to 30 MHz

d) 300 to 3000 kHz

Answer: c;

1144. The 'Emission Designation' of a radio equipment is 2K80J3EGN. Here J is

a) Modulation Type
b) Modulation Signal
c) Information Type
d) Multiplexing

Answer: a;

1145. In 'Emission Designation' of any radio equipment, if Modulated Signal= 8 then 8 stands for

a) amplitude modulation
b) A analog channel
c) No modulated signal
d) Two or more analog channels

Answer: d;

1146. Amateur Radio Direction Finding is sometimes called

a) Orienteering
b) Fox hunting
c) Rabbit hunting
d) Both a & c

Answer d;

1147. In 'Emission Designation' of any radio equipment if Information Type = B then B stands for
a) aural telegraphy
b) telegraphy for machine copying (generally RTTY or high-speed Morse code)
c) analog fax
d) a single analog channel

Answer: b;

1148. If 'Emission Designation' of any radio equipment is 12K5F3E, then the bandwidth on the air by the transmitter is

a) 12.5KHz
b) 125KHz
c) 1.25Hz
d) 5.3KHz;

Answer: a;

1149. Amateur Satellites are orbiting in

a) LEO, HEO & GEO
b) LEO & GEO
c) LEO & HEO
d) GEO & HEO

Answer: c;

1150. According to 'Instructions for Amateur Radio Usages and Procedures in Bangladesh' one Amateur Radio Licensee may use / import a maximum of

a) 01 HF Radio set + 01 VHF Radio set + 01 UHF / VHF walkie-talkie set
b) 02 HF Radio set + 03 VHF Radio set + 01 UHF / VHF walkie-talkie set
c) 01 VHF Radio set + 01 UHF / VHF walkie-talkie set
d) 01 HF Radio set + 01 VHF Radio set

Answer: a;

1151. According to 'Instructions for Amateur Radio Usages and Procedures in Bangladesh' maximum allowable output power for VHF/UHF Radio set is

a) 25 Watt
b) 30 Watt
c) 35 Watt
d) 40 Watt

Answer: a;

1152. According to 'Instructions for Amateur Radio Usages and Procedures in Bangladesh' maximum allowable output power for VHF/UHF Walkie-Talkie set is 5 Watt.

a) 5 Watt
b) 4 Watt
c) 3 Watt
d) 2 Watt

Answer: a;

1153. According to 'Instructions for Amateur Radio Usages and Procedures in Bangladesh' if anyone wants to manufacture /assemble any equipment locally for the purpose of his/her own use, the concerned entity

a) shall have to take prior permission from the Commission by providing detailed technical information and related matters of those equipments.

b) shall have to notify Commission after manufacturing /assemblingthe equipment by providing detailed technical information and related matters of those equipments.

c) do not have to take permission or notify the Commission

d) Any of answer a or b

Answer: a.

1154. According to 'Instructions for Amateur Radio Usages and Procedures in Bangladesh' which of the following information is not required to be recorded in Licensee's Log book

a) Date and time of each transmission
b) Frequency and mode of transmission.
c) A summary of communication exchanged

d) Educational qualification of the Licensee

Answer: d.

1155. Amateur Radio Licenseeshall not_____any amateur Radio with encryption Mode.

a) use
b) use / buy / import
c) buy
d) import

Answer: b

1156. What is the Call Sign Series for Amateur Service in Bangladesh?

a) S2A-S3Z
b) TAA-TCZ
c) GAA-GZZ
d) BAA-BZZ

Answer: a

1157._and_bands typically use ground wave propagation and sky wave propagation over medium distance communication paths

a) LF & MF
b) HF & LF
c) UHF & UVF
d) C and Ku

Answer: a

1158._bands are used for near-vertical-incidence-sky wave and low angle sky wave propagation for regional and global communications

a) LF
b) HF
c) UVF
d) Ku

Answer: b

1159._,____and___bands are generally used for short-range communications, however, there are times when suitable propagation conditions allow beyond line-of-sight communications

a) VHF, UHF & SHF
b) HF, LHF and SHF
c) UHF, UVF and SHF
d) C, K & Ku

Answer: a

1160. Amateur satellites afford an opportunity to use frequencies above_____for long-distance communications

a) LF
b) HF
c) UVF
d) Ku

Answer: b

1161. The VHF frequency range that is authorized to Amateurs is

a) 140-146MHz
b) 144-146MHz
c) 140-144MHz
d) 142-146MHz

Answer: b

1162. The transformer works on the principle of

a) Self Inductance
b) Mutual Inductance
c) Both a & b
d) None

Answer: b

1163. The Capacitor is a

a) Passive Device
b) Active Device
c) Both a & b
d) None

Answer: a

1164. The resistance value of an Insulator is

a) Zero
b) Very High
c) Less than Unity
d) None

Answer: b

1165. The power can be expressed as

a) V=IR
b) P=VI
c) $P=I^2R$
d) Both b & c

Answer: b

1166. The Impedance of a resonant circuit is

a) Zero

b) Equal to resistance
c) Unity
d) Equal to reactance

Answer: b

1167. The noise in a radio receiver can be expressed as

a) S/N ratio
b) N/S ratio
c) Level of reference signal
d) None of these

Answer: a

1168. The 'Skip Distance' is the distance between

a) Transmitter and Receiver
b) Transmitter and Ionospheric Layer
c) Receiver and Ionospheric Layer
d) Between two Ionospheric Layer

Answer: a

1169. The characteristics of RST system stands for

a) Resistance, Signal and Test
b) Readability, Signal strength and Test
c) Readability, Signal strength and Tone
d) Resistance, Signal and Tone

Answer: c

1170. The Phonetic used to represent digit 7 is

a) Setteseven
b) Sieteseven
c) Saatseven
d) Sete7

Answer: a

1171. The Phonetic used to represent alphabet L is

a) LEEMA
b) LEEMAH
c) LEMA
d) LIMA

Answer: b

1172. Which of the following is the HF frequency range allotted for Amateur service?

a) 28-28.4MHz
b) 28-28.7MHz

c) 28-29.4MHz
d) 28-29.7MHz

Answer: d

1173. Which of the following is the HF frequency range allotted for Amateur service?

a) 24 890–24990KHz
b) 24 880–24 990KHz
c) 24 800–24990KHz
d) 24 890–24 995KHz

Answer: a

1174. In Region 3, 5 830–5 850MHz band is allotted for Amateur-satellite for _____ communication

a) Earth-to-space
b) Space-to-earth
c) Both a & b
d) None of these

Answer: a

1175. If you move towards West from the Prime Meridian then the time will

a) Increase
b) Decrease
c) Remain same
d) All of them

Answer: b

1176. Mike lives in Dhaka, but is away on holiday at a location with longitude of 28.9784°E. If the longitude of Dhaka is 90.4125° E then what is the time difference between Mike's locations?

a) 4 hours
b) hours
c) 7 hours
d) 5 hours

Answer: a

1177. The second last character in Class of Emission signifies about

a) Nature of signal(s) modulating the main carrier
b) Type of modulation of the main carrier
c) Type of information to be transmitted
d) Details of Information

Answer: d

1178. The abbreviation (in CW abbreviation) used for 'Now , Resume transmission'

a) NW

b) NRT
c) NWR
d) NWT

Answer: a

1179. The abbreviation (in CW abbreviation) used for 'Best Regards'

a) 73
b) 64
c) 65
d) BR

Answer: a

1180. The Q-Code for 'I will call you again at 3 in the evening' is

a) QRX0300
b) QRX1500
c) QRX3
d) QRX0300E

Answer : b

1181. Before expiration of the license duration, license will have to be renewed within-------months ?

a) 1 month
b) 2 months
c) 3 months
d) 6 months.

Answer : d ;

1182. How much yearly license charges are applicable for the foreign amateur license holder, in BDT.

a) 1000
b) 1500
c) 2500
d) 5000

Answer: c;

1183. The licensee may transmit a message that is to be transmitted on behalf of a third party only in the case of :

a) National event
b) Natural disaster
c) World amateur radio day
d) All of the above

Answer: b;

1184. For Bangladeshi Amateur Radio License Holder, the applicable call sign charges (for once) is :

a) 1000
b) 1500
c) 2500
d) 5000

Answer: c;

1185. The station may be closed down by duly authorized officials of BTRC,----------.

a) at any time, without notice
b) at any time, prior notice required
c) by 3 months after giving notice.
d) None of the above.

Answer: a;

1186. What's the value of pico, p ?

a) 10^{-12}
b) 10^{-9}
c) 10^{9}
d) 10^{-10}

Answer: a;

1187. Bulb in street lighting are connected in

a) Parallel
b) Series Parallel
c) Series
d) End of end

Answer: a;

1188. Satellite engine use :

a) Liquid fuel
b) Jet propulsion
c) Ion propulsion system
d) Solar jet.

Answer: c;

1189. A telephone switch is an example of--------- switching.

a) Packet
b) Message
c) Circuit
d) Virtual circuit

Answer: c;

1190. What detects the satellite signal relayed from the feed and converts it to an electric current, amplifies and lower its frequency?

a) Feedhorn
b) Satellite dish
c) Satellite receiver
d) LNB

Answer: d;

1191. Microwave link repeaters are typically 50 km apart :

a) Because of atmospheric attenuation
b) Because of' earth's curvature
c) Because of output tube power limitations
d) None of these.

Answer: b;

1192. The number of satellite needed for global communication is :

a) 1
b) 2
c) 3
d) 8

Answer: c;

1193. The most widely used microwave antenna :

a) Half-wave dipole
b) Parabolic
c) Hyperbolic
d) Horn

Answer: d;

1194. A method of multiplexing in which the total frequency spectrum available is used by each channel, but only for part of the time :

a) FDM
b) TDM
c) SDM
d) GSM

Answer: b;

1195. A passive satellite -------- the signal :

a) Absorbs
b) Reflects
c) Amplifies
d) None of these.

Answer: b;

1196. The number to be dialed or called to reach a subscriber in the same local network of numbering area is :

a) Local code
b) Area code
c) Toll access code
d) Subscriber No.

Answer: d;

1197. A satellite earth station has :

a) Only transmitting equipment
b) Only receiving equipment
c) Both transmitting and receiving equipment
d) None of the above

Answer: c;

1198. A dielectric waveguide for the propagation of electromagnetic energy at light frequencies :

a) Stripline
b) Microstrip
c) Laser beam
d) Fiber optics

Answer: d;

1199. In satellite communication, analog signal may be converted into digital form using :

a) Componder
b) Transponder
c) Codec
d) Modem

Answer: c;

1200. Echo is :

a) Transmitted signal
b) Modulated signal
c) Demodulated signal
d) Reflected signal.

Answer: d;

1201. Satellite tracking stations are located in remote areas in order to minimize the effect of :

a) cosmic noise
b) thermal noise
c) solar noise
d) Man- made noise

Answer: d;

1202. Radar means :

a) Radio, detection and ranging
b) Radio, direction and ranging
c) Radio, data and ranging
d) Radio, display and ranging

Answer: a;

1203. Radar altimeter is used for measurement of :

a) Height
b) Speed
c) Range
d) Bearing

Answer: a;

1204. Which of the following is common between earth and a geostationary satellite :

a) Same acceleration
b) Same velocity
c) Same angular velocity
d) Same

Answer: c;

1205. A square matrix all of whose elements except the main diagonal are zeroes is called a :

a) Null matrix
b) Singular matrix
c) Diagonal matrix
d) Symmetric matrix

Answer: c;

1206. The process of a computer receiving information from a server on the Internet is known as:

a) Pulling
b) Pushing
c) Downloading
d) Transferring

Answer: c;

1207. Which of the following is not an input device?

a) Keyboard
b) Monitor
c) Joystick
d) Microphone

Answer: b;

1208. Resolution of laser printer is specified in terms of :

a) DPI
b) LPM
c) CPM
d) PPM

Answer: a;

1209. Which of the following refers to the fastest :

a) Note books
b) Personal computer
c) Laptops
d) Super computer

Answer: d;

1210. The chip, used in computers, is made of :

a) Chromium
b) Iron oxide
c) Silica
d) Silicon

Answer: d;

1211. Negative feedback is employed in ------

a) Oscillators
b) Rectifiers
c) Amplifiers
d) None of the above.

Answer: c;

1212. An antenna with unity gain :

a)

a) Rhombic
b) Half-wave dipole
c) Isotropic
d) Whip

Answer: c;

1213. The most important advantage of nuclear energy is :

a) Less time is required to generate the energy
b) A small nuclear fuel is sufficient to produce huge amount of energy
c) Less safety measures are sufficient
d) Many operational difficulties are not there.

Answer: b;

1214. The time gap between the two sounds for an echo is :

a) 1 sec
b) 1/10 sec
c) 1 min
d) None of these

Answer: b;

1215. Which of the following is used in pencils?

a) Graphite
b) Silicon
c) Charcoal
d) Phosphorous

Answer: a;

1216. The filament of an electric bulb is made of :

a) Tungsten

b) Nichrome
c) Graphite
d) None of these

Answer: a;

1217. Balloons are filled with :

a) Nitrogen
b) Helium
c) Oxygen
d) Argon

Answer: b;

1218. Washing soda is the common name for :

a) Sodium carbonate
b) Calcium bicarbonate
c) Sodium bicarbonate
d) Calcium carbonate

Answer: a;

1219. Which of the following is used as a lubricant?

a) Graphite
b) Silica
c) Iron oxide
d) Diamond

Answer: a;

1220. From which mineral is radium obtained?

a) Rutile
b) Haematite
c) Limestone
d) Pitchblende

Answer: d;

1221. The number of output pins in 8085 microprocessors are

a) 40
b) 27
c) 21
d) 19

Answer: b;

1222. The capacity of a cell is measured in

a) Amperes
b) Ampere-hour
c) Watts
d) Watt-hours

Answer: b;

1223. Two battery having unequal emf

a) cannot be connected in parallel.
b) cannot be connected in series.
c) can be connected in series only.
d) may be connected in parallel or series.

Answer: c;

1224. Galvanizing is the coating of

a) Lead
b) Chromium
c) Brass
d) Zinc.

Answer: d;

1225. A fax transmission is usually at a-------- mode.

a) Simplex
b) Half-duplex
c) Full-duplex
d) Multiplex.

Answer: b;

1226. Which of the following quantities consists of S.I. unit as Hertz?

a) Charge
b) Force
c) Frequency
d) Power

Answer: c;

1227. ISDN is an acronym for ----------

a) Information services for digital networks
b) Internet work system for data networks
c) Integrated services digital network
d) Integrated signals digital network.

Answer: c;

1228. Velocity of sound wave is :

a) 332 m/sec
b) 3x108 m/sec
c) 3x10-8 m/sec
d) -332 m/sec

Answer: a;

1229. A current of 5 amps flows in a circuit. How much charge passes through a point in 50s?

a) 150 C
b) 100 C
c) 250 C
d) 300 C

Answer: c;

1230. For a satellite the primary source of power is :

a) Load batteries
b) Inverters
c) Solar cells
d) Nickel cadmium cells.

Answer: c;

1231. A DC generator without commutator is a

a) DC motor
b) AC generator
c) DC generator
d) Induction motor

Answer: c;

1232. Green light is incident on a blue object placed in dark room. The colour of the object will be ------?

a) Blue
b) Green
c) Red
d) Black

Answer: d;

1233. When current flows in a circuit, the number of electrons flowing through this circuit is

a) 0.625×10^{19}
b) 1.6×10^{19}
c) 1.6×10^{-19}
d) 0.625×10^{-19}

Answer: a;

1234. The speed of light is :

a) 300,000,000 mi/s
b) 300,000,000 mm/s
c) 300,000,000 m/s
d) 300,000,000 km/s

Answer: c;

1235. A human being can hear a sound of frequency ranging --------

a) 20 Hz to 20 KHz
b) Below 20 Hz
c) Above 20 Hz
d) None of these.

Answer: a;

1236. What is the name for the flow of electrons in an electric circuit?

a) Capacitance
b) Resistance
c) Current
d) Voltage
Answer: c;

1237. Electrical current is measured in which of the following units?

a) Amperes
b) Ohms
c) Volts
d) Watts

Answer: a;

1238. What electrical component is used to oppose the flow of current in a DC circuit?

a) Transformer
b) Voltmeter
c) Resistor
d) Inductor

Answer: c;

1239. Which of the following is a good electrical conductor?

a) Wood
b) Copper
c) Rubber
d) Glass

Answer: b;

1240. Which of the following is a good electrical insulator?

a) Wood
b) Copper

c) Rubber
d) Glass

Answer: d;

1241. Why should you avoid attaching an antenna to a utility pole?

a) The antenna will not work properly because of induced voltage
b) The utility company will charge you an extra monthly fee
c) The antenna could contact high voltage power wires
d) All of these choices are correct

Answer: c;

1242. What is component 1 in figure T1?

a) Transistor
b) Resistor
c) Connector
d) Battery

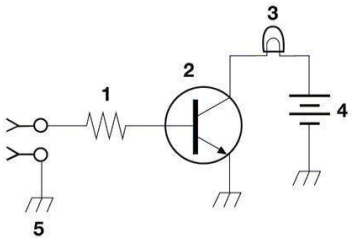

Figure T-1

Answer: b;

1243. What is component 3 in figure T1?

a) Transistor
b) Resistor
c) Battery
d) Lamp

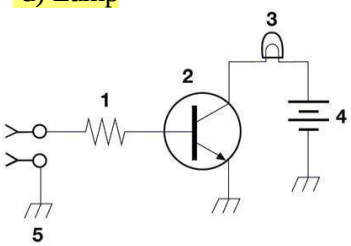

Figure T-1

Answer: d;

1244. What is component 4 in figure T1?

a) Transistor
b) Resistor
c) Battery
d) Cell

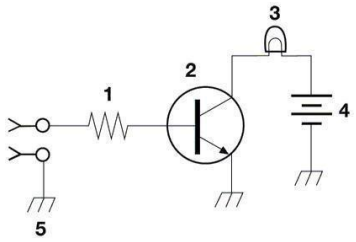

Figure T-1

Answer: c;

1245. What is the way to recharge a 12-volt lead-acid station battery in absence of commercial power?

a) Cool the battery in ice for several hours
b) Add acid to the battery
c) Connect the battery in parallel with a vehicle's battery and run the engine
d) All of these choices are correct

Answer: c;

1246. Which of the following is a safety hazard of a 12-volt storage battery?

a) Touching both terminals with the hands can cause electrical shock
b) Shorting the terminals can cause burns, fire, or an explosion
c) RF emissions from the battery
d) All of these choices are correct.

Answer: b;

1247. What can happen if a lead-acid storage battery is charged or discharged too quickly?

a) The voltage can become reversed
b) The memory effect will reduce the capacity of the battery
c) The battery could overheat and give off flammable gas or explode
d) All of these choices are

correct Answer: c;

1248. What kind of hazard is presented by a conventional 12-volt storage battery?

a) It emits ozone which can be harmful to the atmosphere
b) Shock hazard due to high voltage.
c) Explosive gas can collect if not properly vented.
d) All of these choices are correct.

Answer: c;

1249. Which of the following battery types is rechargeable?

a) Nickel-metal hydride
b) Lead-acid gel-cell
c) Lithium-ion
d) All of these choices are correct

Answer: d;

1250. Which of the following battery types is not rechargeable?

a) Lead-acid
b) Carbon-zinc
c) Nickel-cadmium
d) Lithium-ion

Answer: b;

1251. What electrical component is used to protect other circuit components from current overloads?

a) Fuse
b) Capacitor
c) Inductor
d) All of these choices are correct

Answer: a;

1252. Why is it unwise to install a 20-ampere fuse in the place of a 5-ampere fuse?

a) The power supply ripple would greatly increase
b) The larger fuse would be likely to blow because it is rated for higher current.
c) Excessive current could cause a fire
d) All of these choices are correct

Answer: c;

1253. Which instrument is used to measure electric current?

a) A voltmeter
b) A wavemeter
c) An ohmmeter
d) An ammeter

Answer: d;

1254. Which of the following measurements are commonly made using a multimeter?

a) Signal strength and noise
b) SWR and RF power
c) Impedance and reactance
d) Voltage and resistance

Answer: d;

1255. Which of the following might damage a multimeter?

a) Not allowing it to warm up properly
b) Leaving the meter in the milliamps position overnight
c) Measuring a voltage too small for the chosen scale
d) Attempting to measure voltage when using the resistance setting

Answer: d;

1256. How is an ammeter usually connected to a circuit?

a) In phase with the circuit
b) In quadrature with the circuit
c) In parallel with the circuit
d) In series with the circuit

Answer: d;

1257. What is the correct way to connect a voltmeter to a circuit?

a) In phase with the circuit
b) In quadrature with the circuit
c) In parallel with the circuit
d) In series with the circuit

Answer: c;

1258. What formula is used to calculate voltage in a circuit?

a) Voltage (E) equals current (I) added to resistance (R)

b) Voltage (E) equals current (I) minus resistance (R)
c) Voltage (E) equals current (I) divided by resistance (R)
d) Voltage (E) equals current (I) multiplied by resistance (R)

Answer: d;

1259. What is the voltage across a 10-ohm resistor if a current of 1 ampere flows through it?

a) 11 volts
b) 10 volts
c) 1 volts
d) 9 volts

Answer: b;

1260. A p-type semiconductor material is doped with____impurities whereas a n-type semiconductor material is doped with_____impurities

a) acceptor, donor
b) acceptor, acceptor
c) donor, donor
d) donor, acceptor

Answer: a;

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(for reference and guidance only)

1261. The arrow direction in diode symbol indicates

a) Direction of electron flow
b) Direction of holes flow
c) Opposite to Direction of hole flow
d) none of the above

Answer: b;

1262. The Bangladesh mains supply is

a) 220V D.C.
b) 220V 50Hz
c) 220V 60Hz
d) 220V 100Hz

Answer: b;

1263. The ionosphere is

a) layers of reflective gasses at heights of 70 to 400km.
b) another name for the air we breathe.
c) a type of spherical transmitting antenna.
d) a piece of amateur radio test equipment

Answer: a;

1264. You find an amateur friend lying on the floor, silent and apparently not moving, beside his transmitter which has fallen off the desk. Provided it is safe to do so, you should

a) go for help
b) turn him face up
c) switch off the power
d) pull any microphone and other cables away from him

Answer: c;

1265. You are in contact with a friend by radio and he plays you a piece of music he has written. In reply you should

a) say it is not considered acceptable to play music on amateur radio
b) say it is against the terms of the licence to play music on amateur radio
c) agree it is a nice piece of music and continue to chat about it
d) suggest a couple of changes might work and then play it again

Answer: a;

1266. Immediately before making an initial call an amateur should

a) make an entry in the log book
b) listen on the frequency
c) connect the feeder to a dummy load
d) check the power supply is switched on.

Answer: b;

1267. Which transmission is MOST likely to cause interference?

a) A high power FM transmission.
b) A low power FM transmission.
c) A high power SSB transmission.
d) A low power SSB transmission.

Answer: c;

1268. Frequency does not change in a transformer. (True/ False)

Answer : True

1269. A transformer core is laminated to reduce eddy current losses. (True/ False)

Answer : True

1270. NFAP Means National Frequency Allocation Plan. (True/ False)

Answer : True

1271. ITU Means International Telecommunication Union. (True/ False)

Answer : True

1272. Bangladesh is in ITU Region 4. (True/ False)

Answer : False

1273. The frequency range of the VHF spectrum is 3-300 MHz. (True/ False)

Answer : False

1274. Capacitor is used together with an inductor to make a tuned circuit. (True/ False)

Answer : True

1275. A unit combining the functions of a transmitter and a receiver is called transmitter. (True/ False)

Answer : True

1276. Mixer is used to convert a radio signal from one frequency to another. (True/ False)

Answer : True

1277. Upper sideband is normally used for 10 meter HF, VHF and UHF single-sideband communications. (True/ False)

Answer : True

1278. BTRC provides licenses and call-signs for amateur radio operators in the VHF and UHF bands. (True/ False)

Answer : True

1279. Amateur Radio Licensee can also use the equipment of Amateur Radio society/ clubs with the prior permission from BTRC. (True/ False)

Answer : True

1280. Mayday is an emergency procedure word used internationally as a distress signal in voice procedure radio communications. (True/ False)

Answer : True

1281. A Mayday radio call should be reserved for life threatening situations. . (True/ False)

Answer : True

1282. Three calls of pan-pan are used in radiotelephone communications to signify that there is an urgency on board a boat, ship, aircraft, or other vehicle but that, for the time being at least, there is no immediate danger to anyone's life or to the vessel itself. (True/ False)

Answer : True

1283. A Pan-Pan call should be used for urgent situations that are immediately life threatening and require assistance. (True/ False)

Answer : False

1284. The log book should be maintained in loose sheets. (True / False)

Answer : False

1285. In Bangladesh the minimum age of holding an Amateur Radio License is 18 years. (True / False)

Answer : True

1286. If the licensee wants to discontinue use of radio equipment to avoid paying yearly fees then, the licensee must apply to BTRC for sealing the radio equipment. (True / False)

Answer: True

1287. The licensee shall not transmit a message on behalf of a third party, unless the message relates to a natural disaster. (True / False)

Answer: True

1288. The station may, in reasonable cases, be closed down at any time without notice or explanation by duly authorized officials of the BTRC. (True / False)

Answer: True

1289. The Duration of the License shall be of 1 (One) year initially which will be counted after receiving the approval of License from the Commission. (True / False)

Answer: False

1290. A licensee can move his/her Amateur Radio anywhere without notifying the Commission. (True / False)

Answer: False

1291. Current that flows only in one direction is called Direct Current.

Answer: True;

1292. Current that reverses direction on a regular basis is called Alternate Current.

Answer: True;

1293. "Pulse Rate" describes the number of times per second that an alternating current reverses direction.

Answer: False (Correct answer: Frequency);

1294. The ability to store energy in an electric field is called "Inductance".

Answer: False (Correct answer: Capacitance);

1295. The ability to store energy in an magnetic field is called "Inductance".

Answer: True;

1296. "Farad" is the basic unit of inductance.

Answer: False (Correct answer: Henry);

1297. Impedence is a measure of the opposition to AC current flow in a circuit.

Answer: True;

1298. Inductor is used to oppose the flow of current in a DC circuit.

Answer: False (Correct answer: Resistor);

1299. Devices or circuits that change an alternating current into a varying direct current signal are called "Rectifier".

Answer: True;

1300. A device that combines several semiconductors and other components into one package is called an "Integrated Circuit".

Answer: True;