



River City ARCS

River City Amateur Communications Society



August 2006

Volume 30, Number 5

CLUB INFORMATION

DUES: \$20.00 Per year
ADDRESS: PO Box 215073, Sacramento CA 95821
MEETINGS: Membership meetings are generally held on the first Tuesday of each month, 7:30 P.M., at the Sacramento County Corporation Yard, corner of Don Julio and Elkhorn Blvds. Board of Directors meetings are held the fourth Tuesday at 7:00 pm. All members are welcome. Contact a board member for location.

2006 OFFICERS AND COMMITTEES

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Web Site: www.n6na.org

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N6NA Repeaters

145.250 MHz (-162.2)

442.600 MHz (+100)

Club Net - Members and Guests

Check In on 145.250 MHz

at 8:00 P.M. Wednesdays

2006 SCHEDULE OF EVENTS

Membership Meetings: Sep 5; Oct 3; Nov 8 (Wed); Dec 5

Board Meetings: Sep 26; Oct 24; Nov 28; Dec 26

Picnic: To be announced

Christmas Party: To be announced



Chuck W6FT and Glenn KG6LRX with N6NA manufactured antennas ordered at the August Meeting

Next General Membership Meeting Tuesday, September 5, 2006

Included on the Agenda will be distribution of the antennas that were ordered at the August Meeting. If you ordered one come and pick it up - Cost \$20

Vice President Don KE6GMJ will be presenting the program.

Also, the membership will vote on the revised Constitution and By-laws that have been distributed to the members by e-mail.

Come and join your fellow members at the County Building corner of Don Julio and Elkhorn Blvd.

The officers look forward to your attendance and participation.

**The American Radio Relay League Pacific
Division & the Mt. Diablo Amateur Radio Club
Presents
PACIFICON 2006
Amateur Radio Convention
October 13-15, 2006, San Ramon Marriott Hotel
San Ramon, California**

**For Convention Tickets & Event Schedules go to:
www.PACIFICON.org <http://
www.PACIFICON.org>**

**For Hotel Reservations Call 1-800-228-9290 Be-
fore October 1, 2006. Ask for the Special Pacificon
2006 Rate of \$84 per night.**

_ *PACIFICON 2006* Events Include _:

****Friday All-Day Antenna Seminar**Friday Evening
DXpedition Presentation**Saturday Keynote Break-
fast & Evening Banquet**Outstanding Technical Fo-
rums** Ham Equipment Exhibitors**Great Swap
Meet**Daily Radio Prize Drawings**ARRL
Forum**Transmitter Hunt**QRP Activities**Ham
License Exams**Saturday All-Day Technician Li-
cense Class** HFpack Activities**Legal Seminar**

TEST YOUR KNOWLEDGE

The following questions have been taken from the Exam Pools for the Technician, General and Extra Exams. Reference and answers are at the end of the questions
August 2006

1-What should you do if you hear a newly licensed operator that is having trouble with their station?

- A. Tell them to get off the air until they learn how operate properly
- B. Report them to the FCC
- C. Contact them and offer to help with the problem
- D. Move to another frequency

2-What determines the proper size solar panel to use in a solar-powered battery-charging circuit?

- A. The panel's voltage rating and maximum output current
- B. The amount of voltage available per square inch of panel
- C. The panel's open-circuit current
- D. The panel's short-circuit voltage

3-Which of the following types of communications are not permitted in the Amateur Radio Service?

- A. Brief transmissions to make adjustments to the station
- B. Brief transmissions to establish two-way communications with other stations
- C. Transmissions to assist persons learning or improving proficiency in CW
- D. Communications on a regular basis that could reasonably be furnished alternatively through other radio services

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

- A. One-quarter to 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. One to two times the normal peak output voltage of the power supply

5-A two-times increase in power results in a change of how many dB?

- A. 1 dB higher
- B. 3 dB higher
- C. 6 dB higher
- D. 12 dB higher

6-What is the name of a current that reverses direction on a regular basis?

- A. An alternating current
- B. A direct current
- C. A circular current
- D. A vertical current

7-Who is a Volunteer Examiner?

- A. A certified instructor who volunteers to examine amateur teaching manuals
- B. An FCC employee who accredits volunteers to administer amateur license exams
- C. An amateur accredited by one or more VECs who volunteers to administer amateur license exams
- D. Any person who volunteers to examine amateur station equipment

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

- A. The effect is almost instantaneous
- B. 1.5 minutes
- C. 8 minutes
- D. 20 to 40 hours

9-What is the equivalent to the root-mean-square value of an AC voltage?

- A. The AC voltage found by taking the square of the average value of the peak AC voltage
- B. The DC voltage causing the same heating in a given resistor as the peak AC voltage
- C. The DC voltage causing the same heating in a given resistor as the RMS AC voltage of the same value
- D. The AC voltage found by taking the square root of the average AC value

10-Within the 20-meter band, what is the amount of spectrum authorized to only control operators holding an Amateur Extra Class operator license?

- A. 25 kHz
- B. 50 kHz
- C. None
- D. 25 MHz

11-What is the definition of the term telemetry?

- A. A one-way transmission of measurements at a distance from the measuring instrument
- B. A two-way interactive transmission
- C. A two-way single channel transmission of data
- D. A one-way transmission to initiate, modify or terminate functions of a device at a distance

12-How would a signal tracer normally be used?

- A. To identify the source of radio transmissions
- B. To make exact drawings of signal waveforms
- C. To show standing wave patterns on open-wire feed-lines
- D. To identify an inoperative stage in a receiver

13-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 is tuned for minimum SWR
- C. It is connected between a receiver and an antenna of unknown impedance and is tuned for minimum noise
- D. It is connected between an antenna and ground and is tuned for minimum SWR

14-Where should ferrite beads be installed to suppress ignition noise in a mobile transceiver?

- A. In the resistive high-voltage cable
- B. Between the starter solenoid and the starter motor
- C. In the primary and secondary ignition leads
- D. In the antenna lead to the transceiver

15-What is something you can do when using an amateur radio satellite?

- A. Listen to the Space Shuttle
- B. Get global positioning information
- C. Make autopatch calls
- D. Talk to amateur radio operators in other countries

16-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

17-What factors limit the accuracy, frequency response and stability of a D'Arsonval-type meter?

- A. Calibration, coil impedance and meter size
- B. Calibration, mechanical tolerance and coil impedance
- C. Coil impedance, electromagnetic voltage and movement mass
- D. Calibration, series resistance and electromagnet current

18-What is the approximate length, in inches, of a quarter-wavelength vertical antenna for 146 MHz?

- A. 112 inches
- B. 50 inches
- C. 19 inches
- D. 12 inches

19-If you are a Technician Class operator with a CSCE for General Class operator privileges, how do you identify your station when transmitting on 14.035 MHz?

- A. You must give your call sign and the location of the VE examination where you obtained the CSCE
- B. You must give your call sign, followed by the slant mark "/", followed by the identifier "AG"
- C. You may not operate on 14.035 MHz until your new license arrives
- D. No special form of identification is needed

20-How is frequency shift related to keying speed in an FSK signal?

- A. The frequency shift in hertz must be at least four times the keying speed in WPM
- B. The frequency shift must not exceed 15 Hz per WPM of keying speed
- C. Greater keying speeds require greater frequency shifts
- D. Greater keying speeds require smaller frequency shifts

21-What causes intermodulation in an electronic circuit?

- A. Too little gain
- B. Lack of neutralization
- C. Nonlinear circuits or devices
- D. Positive feedback

22-What is an electromagnetic wave?

- A. Alternating currents in the core of an electromagnet
- B. A wave consisting of two electric fields at right angles to each other
- C. A wave consisting of an electric field and a magnetic field at right angles to each other
- D. A wave consisting of two magnetic fields at right angles to each other

23-When must priority be given to stations providing emergency communications?

- A. Only when operating under RACES
- B. Only when an emergency has been declared
- C. Any time a net control station is on the air
- D. At all times and on all frequencies

24-What is a crystal lattice filter?

- A. A power supply filter made with interlaced quartz crystals
- B. An audio filter made with four quartz crystals that resonate at 1-kHz intervals
- C. A filter with wide bandwidth and shallow skirts made using quartz crystals
- D. A filter with narrow bandwidth and steep skirts made using quartz crystals

25-What formula is used to calculate current in a circuit?

- A. Current (I) equals voltage (E) multiplied by resistance (R)
- B. Current (I) equals voltage (E) divided by resistance (R)
- C. Current (I) equals voltage (E) added to resistance (R)
- D. Current (I) equals voltage (E) minus resistance (R)

26-What is another term for the mixing of two RF signals?

- A. Heterodyning
- B. Synthesizing
- C. Cancellation
- D. Multiplying

27-Why is neutralization necessary for some vacuum-tube amplifiers?

- A. To reduce the limits of loaded Q
- B. To reduce grid-to-cathode leakage
- C. To cancel AC hum from the filament transformer
- D. To cancel oscillation caused by the effects of interelectrode capacitance

28-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 along an ionospheric signal path
- B. The lowest usable frequency can never exceed the maximum usable frequency
- C. The ionospheric absorption of HF radio signals increases by 3 dB along every signal path
- D. All ionospheric propagation paths are still usable, but the signal-to-noise ratio decreases

29-How many watts does a hand-held transceiver put out if the output power is 500 milliwatts?

- A. 0.02 watts
- B. 0.5 watts
- C. 5 watts
- D. 50 watts

30-If you are a Technician Class operator with a CSCE for General Class operator privileges, how do you identify your station when transmitting phone emissions on 14.325 MHz?

- A. No special form of identification is needed
- B. You may not operate on 14.325 MHz until your new license arrives
- C. You must give your call sign, followed by any suitable word that denotes the slant mark and the identifier "AG"
- D. You must give your call sign and the location of the VE examination where you obtained the CSCE

31-What is the basic unit of resistance?

- A. The volt
- B. The watt
- C. The ampere
- D. The ohm

32-What communications are possible during gray-line propagation?

- A. Contacts up to 2,000 miles only on the 10-meter band
- B. Contacts up to 750 miles on the 6- and 2-meter bands
- C. Contacts up to 8,000 to 10,000 miles on three or four HF bands
- D. Contacts up to 12,000 to 15,000 miles on the 2 meter and 70 centimeter bands

33-What type of communications are prohibited when using a repeater autopatch?

- A. Calls to a recorded weather report
- B. Calls to your employer requesting directions to a customer's office
- C. Calls to the police reporting a traffic accident
- D. Calls to a public utility reporting an outage of your telephone

34-What physical aspects of an air-insulated parallel-conductor transmission line determine its characteristic impedance?

- A. The RF resistance of the conductors and the length of the conductors
- B. The diameter of the conductors and the distance between their centers
- C. The RF resistance of the conductors and the dielectric constant of the insulation
- D. The resistance of each wire to RF ground and the antenna's impedance

Question Pool Reference (T=Technician; G=General; E=Extra)

1-T3C07; 2-G4E10; 3-T1C11 [97.113(a)(5)]; 4-G7A04; 5-G5B01; 6-T4A08; 7-T1A04 [97.509(b)]; 8-G3A03; 9-E8A12; 10-E1A07 [97.301(b)]; 11-E1A20 [97.3(a)(45)]; 12-G4B03; 13-G4B04; 14-E4D03; 15-T7B03; 16-G5A06; 17-E4B18; 18-T9A11; 19-G1D07 [97.119f2]; 20-G8B08; 21-E4C17; 22-E8D08; 23-T8A12 [97.101(c)]; 24-E6E03; 25-T4D01; 26-G8B13; 27-G4A07; 28-G3B11; 29-T4E11; 30-G1D08 [97.119f2]; 31-T4A07; 32-E3B11; 33-T2A10 [97.113(a)(3),(a)5(e)]; 34-G9D12; 35-G1C03 [97.313c1]; 36-E3C08; 37-T2A01 [97.113(b)]; 38-E5E10; 39-G9C07

ANSWERS

1-(C); 2-(A); 3-(D); 4-(D); 5-(B); 6-(A); 7-(C); 8-(C); 9-(C); 10-(B); 11-(A); 12-(D); 13-(C); 14-(C); 15-(D); 16-(A); 17-(B); 18-(C); 19-(B); 20-(C); 21-(C); 22-(C); 23-(D); 24-(D); 25-(B); 26-(A); 27-(D); 28-(A); 29-(B); 30-(B); 31-(C); 32-(D); 33-(C); 34-(B); 35-(B); 36-(A); 37-(B); 38-(B); 39-(C);

35-What is the maximum transmitting power an amateur station may use on 10.140 MHz?

- A. 200 watts PEP output
- B. 1000 watts PEP output
- C. 1500 watts PEP output
- D. 2000 watts PEP output

36-For a 3-element beam antenna with horizontally mounted elements, how does the main lobe takeoff angle vary with height above flat ground?

- A. It increases with increasing height
- B. It decreases with increasing height
- C. It does not vary with height
- D. It depends on E-region height, not antenna height

37-When is an amateur station authorized to transmit information to the general public?

- A. Never
- B. Only when the operator is being paid
- C. Only when the transmission lasts more than 10 minutes
- D. Only when the transmission lasts longer than 15 minutes

38-When using rectangular coordinates to graph the impedance of a circuit, what does the vertical axis represent?

- A. The voltage or current associated with the resistive component
- B. The voltage or current associated with the reactive component
- C. The sum of the reactive and resistive components
- D. The difference between the resistive and reactive components

39-How does antenna height affect the horizontal (azimuthal) radiation pattern of a horizontal dipole HF antenna?

- A. If the antenna is too high, the pattern becomes unpredictable
- B. Antenna height has no effect on the pattern
- C. If the antenna is less than one-half wavelength high, the azimuthal pattern is almost omnidirectional
- D. If the antenna is less than one-half wavelength high, radiation off the ends of the wire is eliminated