

QUIZ: ELECTRONICS

Please record your answers on the answer sheet.

1. Charge is
 - a. a basic electrical quantity that refers to a + flow
 - b. measured in coulombs or volts
 - c. a component of Ohm's law
 - d. a and b

2. Current is
 - a. resistance to flow
 - b. electrical potential energy per unit of charge
 - c. the rate of energy conversion for a system
 - d. the flow of electrons in a completed circuit

3. Energy is measured in
 - a. joules
 - b. watts
 - c. farads
 - d. volts

4. A resistor
 - a. stores electrical potential energy in a magnetic field
 - b. is a circuit component that limits current flow to a single direction
 - c. stores electrical energy in an electric field
 - d. is a two-terminal electronic circuit component where current flow is proportional to applied voltage

5. Voltage is
 - a. resistance to flow
 - b. electrical potential energy per unit of charge
 - c. the rate of energy conversion for a system
 - d. the flow of electrons in a completed circuit

6. Conductive heating
 - a. occurs as a result of resistive heating
 - b. is the second phase of heating during RF ablation
 - c. sensed by a thermistor probe in the catheter tip
 - d. all of the above

7. A diode
- a. stores electrical potential energy in a magnetic field
 - b. is a circuit component that limits current flow to a single direction
 - c. stores electrical energy in an electric field
 - d. is a two-terminal electronic circuit component where current flow is proportional to applied voltage
8. Power is
- a. resistance to flow
 - b. electrical potential energy per unit of charge
 - c. the rate of energy conversion for a system
 - d. the flow of electrons in a completed circuit
9. A capacitor
- a. stores electrical potential energy in a magnetic field
 - b. is a circuit component that limits current flow to a single direction
 - c. stores electrical energy in an electric field
 - d. is a two-terminal electronic circuit component where current flow is proportional to applied voltage
10. Resistive heating
- a. occurs as a result of conductive heating
 - b. is the second phase of heating during RF ablation
 - c. occurs with tissue just beyond the catheter tip
11. In pacing, current is measured in
- a. milliamps
 - b. farads
 - c. ohms
12. A constant voltage pacemaker
- a. has a capacitor-like output circuit
 - b. has a decrease or decay during stimulus delivery of both voltage and current
 - c. is the type of system found with the majority of pacemakers
 - d. all of the above
13. Voltage and current are related to each other by
- a. resistance
 - b. capacitance
 - c. farads
 - d. inductance

14. Impedance is measured in
- joules
 - Newtons
 - ohms
 - volts
15. Impedance is
- opposition to flow
 - used for 'resistance' in pacing
 - electrical potential energy per unit of charge
 - a and b
16. If voltage is reduced by half
- current is reduced by half
 - current is doubled
 - current remains unchanged
 - current increases x 4
17. Ohm's law is
- $C = 2D$
 - $V = IR$
 - describing the relationship between current, voltage, and impedance.
 - a and c
 - b and c
18. If impedance increases
- current decreases
 - current increases
 - current doubles
 - current stays the same
19. Power is measured in
- watts
 - volts
 - ohms
 - farads
20. Energy occurs when
- resistance is increased
 - a charge is moved against electrical forces
 - impedance is reduced
 - electrical potential is stored in an electric field

21. Ablation energy is delivered in
- watts
 - joules
 - ohms
 - farads
22. Capacitance is
- the ability of an impulse to move from cell to cell
 - the ability of a structure to hold an electrical charge
 - a measure of resistance to flow
 - storage of electrical potential in a magnetic field
23. An inductor
- stores electrical potential in a magnetic field
 - is a circuit component that limits current flow to a single direction
 - stores electrical energy in an electric field
 - is a two-terminal electronic circuit component where current flow is proportional to applied energy
24. In pacing, impedance is determined by
- conductor resistance
 - electrode resistance
 - polarization impedance
 - battery capacity
- 1 and 2
 - 2 and 3
 - 2 and 4
 - 1, 2, and 3
25. Effective tissue heating during ablation has been associated with impedance drops of
- 5-10 ohms
 - 10-20 ohms
 - 20-30 ohms
 - >50 ohms
26. Impedance rises during ablation are associated with
- current leak
 - boiling
 - char
 - coagulum
 - clot formation
 - a, b, and c
 - b, c, d, and e

27. During the use of cooled or irrigated tip catheters
- impedance monitoring is helpful
 - tip temperature monitoring is inoperative
 - current leak is common
 - a and b
28. Which of the following may be components of a circuit?
- resistors
 - capacitors
 - inductors
 - leads
 - tissue
- 1 and 2
 - 1, 2, 3
 - 2, 3, 4
 - 1, 2, 4, 5
 - all of the above
29. Signals
- are time-varying voltage
 - represent the final product on our tracings
 - are processed by pulse-generator sensing circuits
 - all of the above
30. The greater the interelectrode distance
- the larger the 'field of view'
 - the smaller the 'field of view'
 - the more focused the view of the tissue
 - the more easily activation from one area to another may be discriminated.
31. The high frequency of a signal represents
- the T wave
 - the P wave
 - the QRS
 - the entire QRS complex
32. During the EP study
- low frequency content is usually rejected
 - high frequency content is usually rejected
 - no content is rejected

33. Frequency content for EP studies is generally within the range of

- a. 5-20 Hz
- b. 10-100Hz
- c. 20-200Hz
- d. 30-500Hz

34. Clipping is

- a. using scissors to cut out the desired portions of a tracing you want to display
- b. the rejection of a signal above a given voltage
- c. measured in volts
- d. used to prevent tracing 'overlap'
- e. b and d
- f. b and c

35. An amplifier

- a. changes the amplitude of a signal
- b. increases the height or amplitude of a signal without changing any other component
- c. is generally not used with the signals from an EP study
- d. a and b