

1) Which of the following is a good conductor of an electric current?

- A. Rubber.
- B. Plastic.
- C. Glass.
- D. Aluminum

2) The frequency 50MHz is

- A. LF.
- B. HF.
- C. VHF.
- D. UHF

3) Soldering workstations

- A. require an emergency cut off switch in case the soldering tip comes into contact with the skin.
- B. should be well ventilated to avoid inhaling fumes.
- C. must be on an anti-static surface.
- D. must be earthed.

4) In a circuit of resistors in series that are connected to a battery, the current flowing each resistor will

- A. be the same as the battery voltage.
- B. be different depending on the voltage of the battery.
- C. be different depending on the value of the resistor.
- D. be same in each resistor.

50) The correct formula relating the voltage, V, the current, I, and the resistance R is

- A.  $R = V - I$
- B.  $R = V \times I$
- C.  $R = I / V$
- D.  $R = V / I$

6) The voltage across three resistors connected in series is 5 volts, 10 volts and 20 volts respectively. The total voltage across all three resistors is

- A. 5 volts.
- B. 10 volts.
- C. 20 volts.
- D. 35 volts.

7) What is the significant difference between AC and DC?

- A. Direct currents are always greater than alternating currents.
- B. Direct currents take a long time to change direction.
- C. Alternating currents are continually changing direction.
- D. Alternating currents have a fixed polarity

8) An Analogue to Digital converter (ADC)

- A. represents a digital signal in analogue format
- B. samples an analogue signal and creates a digital representation of it
- C. changes audio signals to RF
- D. is an optional component in a Software defined radio

9) A secondary battery

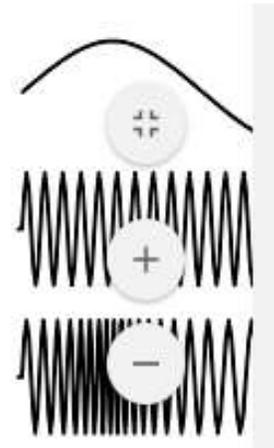
- A. cannot be recharged.
- B. may be recharged.
- C. undergoes a chemical process that cannot be reversed.
- D. consists of a single cell.

10) Adding information to a radio frequency carrier is known as

- A. transmission.
- B. tuning.
- C. amplification.
- D. modulation.

11) The bottom waveform in the diagram shows

- A. an audio wave.
- B. a carrier wave.
- C. an amplitude modulated wave.
- D. a frequency modulated wave.



12) Recovering the original information from a received radio signal is called

- A. demodulation.
- B. modulation.
- C. filtering.
- D. oscillating.

130 In a receiver the demodulator

- A. recovers the original information from the received signal
- B. amplifies the received signal so that it can be heard through the loudspeaker
- C. mixes the audio signal with a frequency from the local oscillator
- D. matches the antenna to the transmitter.

14) The voltage across any branch of a parallel circuit:

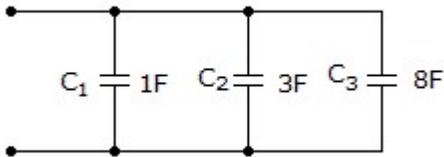
- A. varies as the total current varies

- B. is inversely proportional to total circuit resistance
- C. is equally applied to all branch conductances
- D. is dropped in proportion to each branch resistance

15) What happens to total resistance in a circuit with parallel resistors if one of them opens?

- A. It increases.
- B. It halves.
- C. It remains the same.
- D. It decreases.

16) What is the total capacitance?



- A. 1 F
- B. 12 F
- C. 0.615 F
- D. 8 F

17) A capacitor stores energy within a dielectric between the conducting plates in the form of:

- A. a magnetic field
- B. positive voltage
- C. negative voltage
- D. an electric field

18) Which of the following determines the capacitance of a capacitor?

- A. Plate area, dielectric strength, and plate separation
- B. Voltage rating, dielectric constant, and temperature coefficient
- C. Temperature coefficient, plate area, and plate separation
- D. Plate area, dielectric constant, and plate separation

19) Most older types of paper capacitors have been replaced by which type of construction?

- A. electrolytic
- B. plastic film
- C. oxide casing
- D. waxed paper

20) In a purely capacitive circuit,

- A. current leads voltage by  $90^\circ$
- B. voltage leads current by  $90^\circ$
- C. current lags voltage by  $90^\circ$
- D. current and voltage have a phase relationship of  $0^\circ$

21) The electrical energy consumed by a coil is stored in the form of:

- A. an electrical field
- B. a force field
- C. an electrostatic field
- D. a magnetic field

22) In a purely inductive circuit,

- A. current leads voltage by  $90^\circ$
- B. voltage lags current by  $90^\circ$
- C. voltage leads current by  $90^\circ$
- D. voltage and current are in phase ( $0^\circ$ )