

# MY SLOT NOTES

**RESULT = Robert E Sult**  
**For the best reSULT conSULT SULT**

## Basic Mathematics / Electronics

By Robert E Sult

1) The most basic electronics formula is:

$$I = E/R$$

If  $E=50$  volts and  $R=100$  ohms what is  $I$ ?

- a) **0.5 amps**
- b) 5 milliamps
- c) 5 amps

2)  $I=0.1$  amps  $R=100$  ohms what is the value of  $E$ ?

- a) **10 volts**
- b) 0.00001 volt
- c) 100 volt

3) One of the power formulas is:

$$P = EI$$

If  $R=1200$  and  $I=0.01$  amp what is the value of  $P$ ?

- a) 0.0012 watt
- b) **0.12000 watt**
- c) 0.00012 watt

What is the Voltage?

- a) **12**
- b) 120
- c) 6
- d) None of these

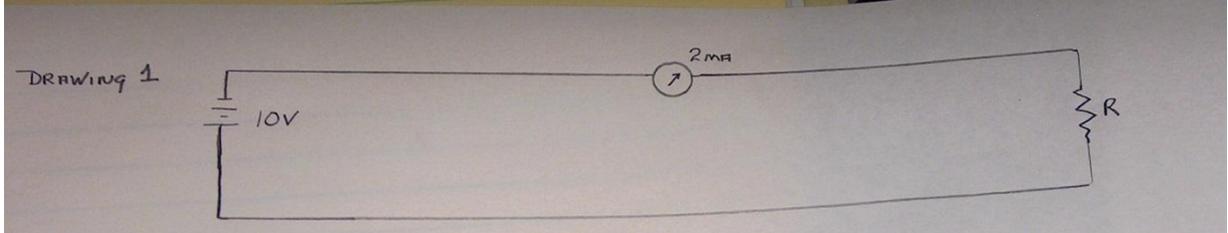
4) A capacitor charged to 100 volts discharges in 14 milliseconds to 37 volts through a 4700-ohm resistor. Because  $T=RC$  (that's the RC time formula) the capacitance is:

- a) 336 farads
- b) **2.98 microfarads**
- c) 5000 microfarads

5) The calibration button on an ECG (or EKG) machine does what?

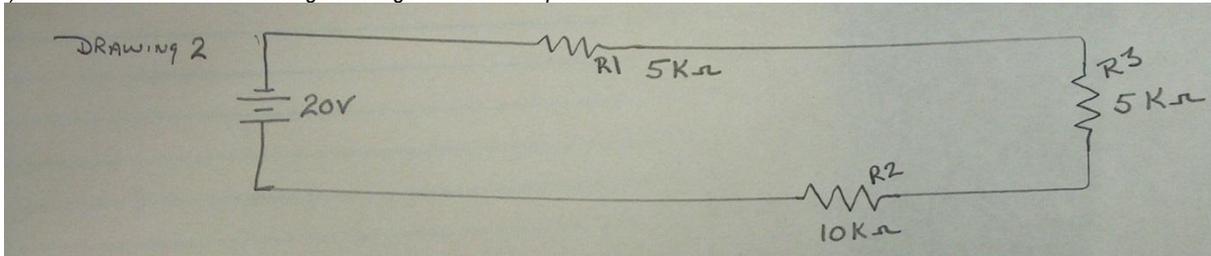
- a) **Produces a 1 microvolt pulse**
- b) Produces a 1 millivolt
- c) Produces a microvolt dc level
- d) Produces a millivolt dc level

6) In the circuit shown in Drawing-1 R equals:



- a) 20 Kilo-ohms
- b) **5 Kilo-ohms**
- c) 5 ohms
- d) 20 mega-ohms

7) In the circuit shown in Drawing-2 Voltage across R1 equals:



- a) 10 volts
- b) 6.67 volts
- c) **5 volts**
- d) 4 volts

8) The number 1101 in binary is equivalent to decimal number of:

- a) **13**
- b) 11
- c) 25
- d) None of these

9) Add the binary numbers:  $101101 + 110100$

- a) **1100001**
- b) 1011001
- c) 111001
- d) None of these

10) The binary number 110101 is equivalent to an octal number of

- a) 35

- b) **65**
- c) 54
- d) None of these

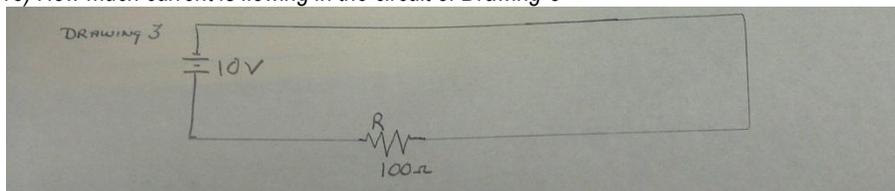
11) The hexadecimal number 2E is equivalent to the decimal number of:

- a) **46**
- b) 37
- c) 16
- d) None of these

12) The Boolean statement, A AND B equals Q can be written:

- a)  **$AB=Q$**
- b)  $A*B=Q$
- c)  $(A)(B)=Q$
- d) None of these

13) How much current is flowing in the circuit of Drawing-3



- a) 1 amp
- b) **0.1 amp**
- c) 10 amps
- d) 100 amps
- e) None of these

14) In the circuit of Drawing-3 how much power will be dissipated by the resistance

- a) **1 watt**
- b) 10 watts
- c) 100 watts
- d) 1000 watts

15) A resistor that changes value greatly with small change in voltage across it is:

- a) **A varistor**
- b) A thyristor
- c) A thermistor

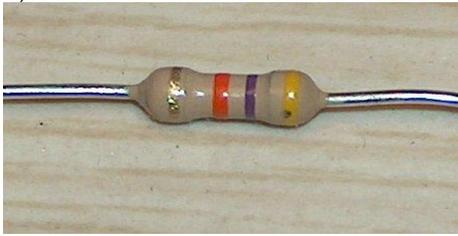
16) The values of two or more inductors in series or parallel combine like:

- a) **Resistors**
- b) Capacitors
- c) Neither

17) A resistor color coder yellow violet silver is

- a) 470 ohms
- b) 4.7 ohms
- c) **0.47 ohms**

18) The resistor in Photo 1 is



- a) **A 4.7 Kilo-ohms resistor 5 percent tolerance**
- b) A 470 ohm resistor
- c) **A 4700 ohm resistor**
- d) A resistor that has an actual measurement within 2 percent of the marked value

19) Color coding for a 5% 260 Kohm resistor will be:

- a) Green, purple, black, gold
- b) **Red, blue, yellow, gold**
- c) Blue, red, silver, gold
- d) Blue, grey, gold, gold

20) In antenna systems 0 dB is

- a) Total lack of signal
- b) **1000 micro volts signal level**
- c) Less than 1 volt peak to peak signal
- d) Insignificant noise level within the desired signal

21) At resonance a half wave dipole antenna typically has what impedance?

- a) 1000 ohms
- b) 300 ohms
- c) **72 ohms**
- d) 50 ohms

22) The speed of light is

- a) 186,000,000 miles per second
- b) **186,000 miles per second**
- c) 250,000 miles per second
- d) 5280 miles per second

23) The wavelength of a 1 hertz signal would be

- a) 5280 feet
- b) 984 million feet
- c) 5280 miles
- d) **186,000 miles**

24) The CRT high voltage circuit should be discharged by

- a) Shorting to cabinet
- b) Using a high voltage probe

- c) **Shorting to chassis**
- d) Shorting high voltage to collector heat sinks

25) CMOS chips; field effect transistors and other sensitive electronic components can be damaged easily by

- a) Long shelf life
- b) Using near high voltage supplies
- c) Operating for long periods of time
- d) **Any type of static discharge**

26) A degaussing coil is used to demagnetize

- a) The metal portions of the TV cabinet
- b) The conductive coating inside the bell of the kinescope
- c) The permanent magnets in the yoke of TV set
- d) **The shadow mask inside the picture tube**

27) A Balun as used with TV sets is

- a) **A matching transformer**
- b) A VHF/UHF bandsplitter
- c) An AC power isolator and cable TV conversion switch
- d) AC power connection interface plug

28) The Video drive signal to the 25" CRT control grids, or cathodes, should be about what level?

- a) 1000 volts
- b) **100 volts**
- c) 1 to 5 volts
- d) 1000 micro volts

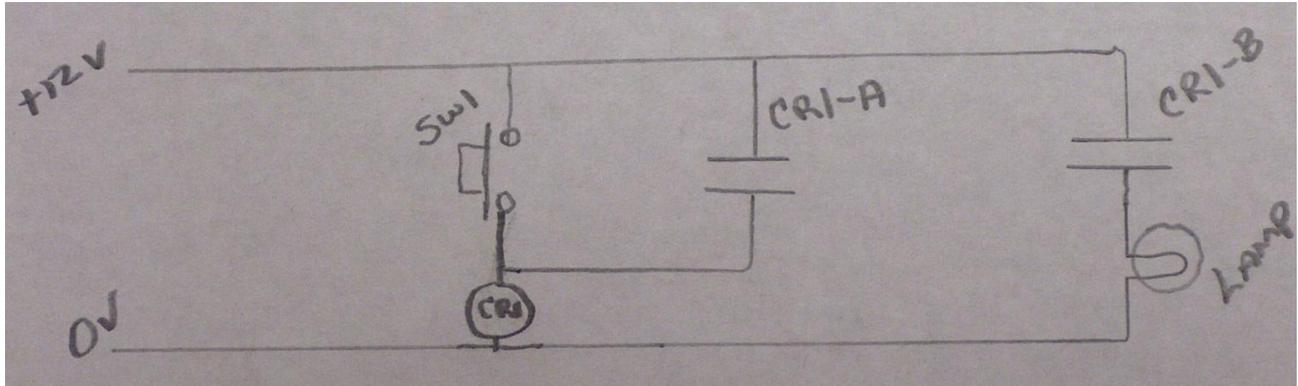
29) A Microprocessor based system is

- a) Bus oriented
- b) Versatile
- c) Controlled by software
- d) **All of the above**

30) A byte is usually understood to be

- a) 4 binary bits
- b) 32 binary bits
- c) **8 binary bits**
- d) All of the above

31) In Drawing-4 the bulb will light as long as SW1 is making contact and will not light when SW1 is not making contact



- a) True
- b) **False**

32) The purpose of the CR1-A relay contacts is to keep the relay on after the SW1 switch is released

- a) **True**
- b) False

Note: could have difficulty with industrial electronics unless you work with it regularly you might not recognize some of the and notations. Relay contacts like capacitors in other zymology and the relay does not show the "coil of wire" symbol familiar to other areas of electronics.

33) The current ratings on SCRs are usually listed as

- a) **Average**
- b) Total
- c) ROMs
- d) Instantaneous

34) A Radar pulse will travel out one nautical mile, be reflected, and return in what length of time?

- a) 50 microseconds
- b) **12.4 microseconds**
- c) 6.2 microseconds

35) The bandwidth of twisted-pair telephone wire will be approximately:

- a) 600 Hz
- b) 60Hz
- c) 30Mhz
- d) **3 KHz**

36) Baud rate is:

- a) Pulse per second
- b) **Bits per second**
- c) Bytes per second
- d) Words per second

37) Cellular phones transmit with about 8 watts of power

- A) True
- B) False**

38) With an Oscilloscope in triggered sweep operation:

- a) The sweep voltage starts at trigger**
- b) The trace starts without regard to the trigger
- c) Vertical deflection is triggered by sweep
- d) Horizontal deflection is modulated by Z

39) Use of an x10 probe instead of direct connection to a scope:

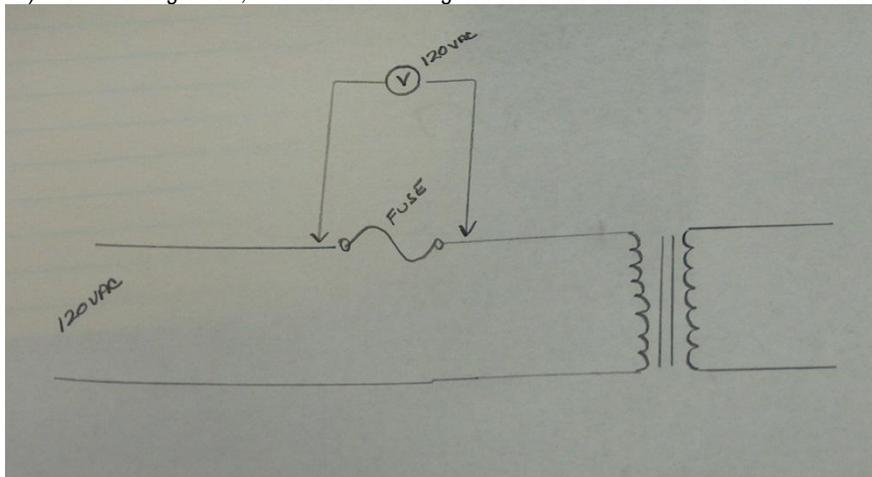
- a) Decreases the signal to the scope
- b) Increases the effective input impedance
- c) Reduces circuit loading
- d) All of the above**

40) A digital voltmeter contains a frequency counter. In order to use the counter to measure voltage the input voltage level:

- a) Is used to scale time
- b) Goes to an analog to digital converter**
- c) Is applied to a galvanometer
- d) Both a and b are correct

**B= is the most direct answer**

41) In the drawing below, The meter is reading 120vac across the fuse. this is an indication of what?



- a) The Fuse is Good
- b) The Fuse is blown**
- c) Transformer is bad
- d) none of the above

