1 3 Types of Magnets:

a. _____

b. _____

c. _____

2. 3 Requirements to Generate AC:

a. .

b. _____

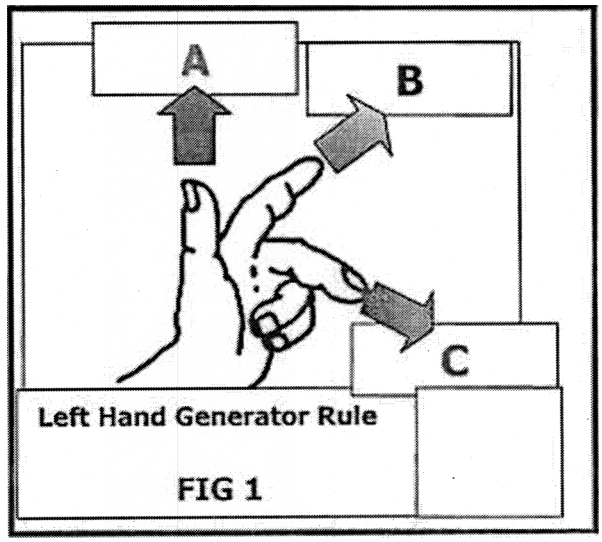
c. _____

3 Identify(FIG 1)

a.

b. _____

c. _____



What are the magnetic lines of force of a magnet called?

What are the Laws of Magnets?

6. How many degrees are there in an AC Alternation?

7. Identify: (FIG 2)

a.

b.

c.

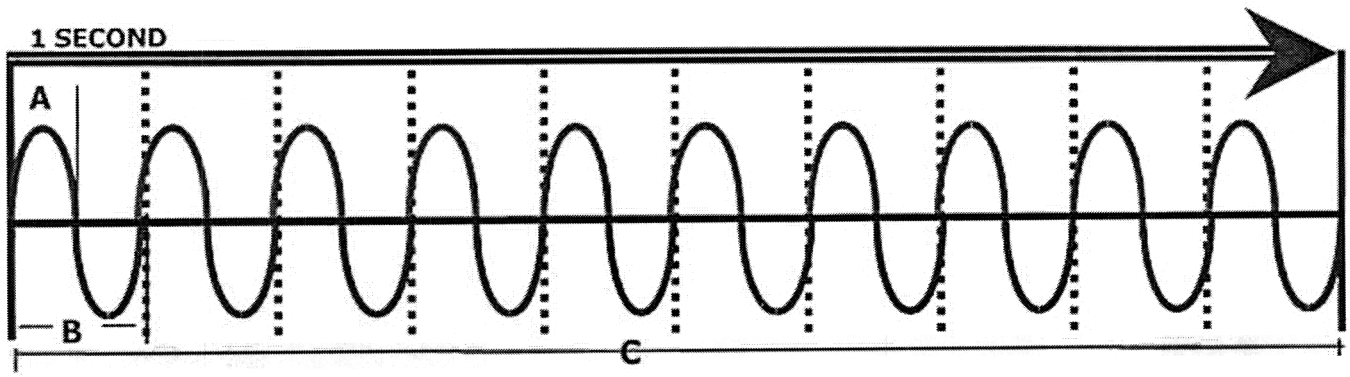


FIG 2

8. Calculate:

	FREQ	PERIOD	Pulse Width
a.	33KHz		
b.	5MHz		
c.	150Hz		
d.		16.666msec	
e.	_____	7.407 µsec	
f		28.571µsec	
g.	_____	_____	2.5msec
h.	_____	_____	50µsec
			1.2µsec

Calculate:

	PEAK to PEAK	PEAK	RMS
a.	$120V_{pp}$		
b.	$20V_{pp}$		
c.	$114V_{pp}$		
d.		$20V_p$	
e.		$5V_p$	
f.		$140V_p$	
g.	_____	_____	$120V_{ac}$
h.	_____	_____	$10V_{ac}$
i.	_____		$50V_{ac}$

10. Identify Wave Type: (Fig 3)

a. _____

b. _____

c. _____

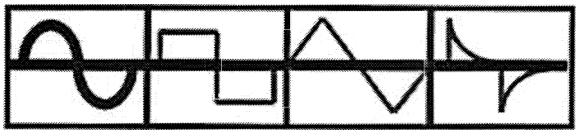


FIG 3

d.

1. Identify: (FIG 4) (E_A, E_c, E_L, I_T, E_R)

a. _____

b.

c. _____

d. _____

e. _____

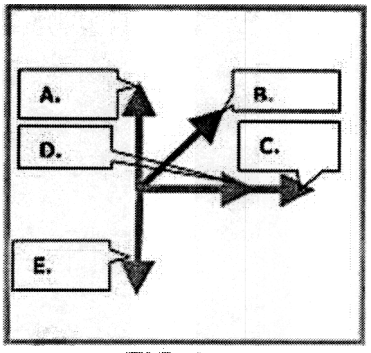
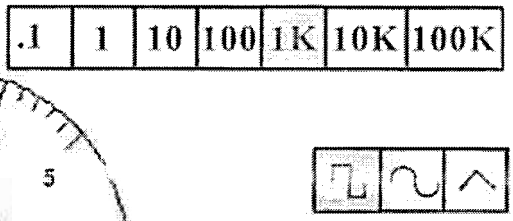


FIG 4

12. Fill in Blanks:(FIG 5)

a. Frequency: _____

b. Output Wave: _____



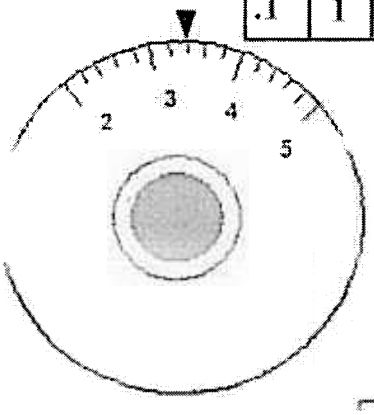


FIG 5

13. Calculate: (FIG6)

a. V_{PP}: _____

b. V_P : _____

c. V_{AC}: _____

d. Period: _____

e. PW: _____

f. Freq: _____

Volts/DIV = 5m

Sec/ DIV = 50µs

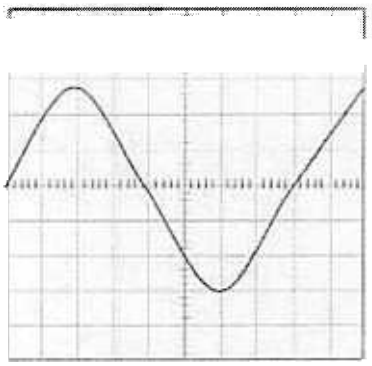


FIG 6

14. Calculate: (FIG 7)

a. V_{PP}: _____

b. Period: _____

c. Freq: _____

d. DC Volts: _____

Volts/DIV = 10V

Sec/ DIV = 1ms

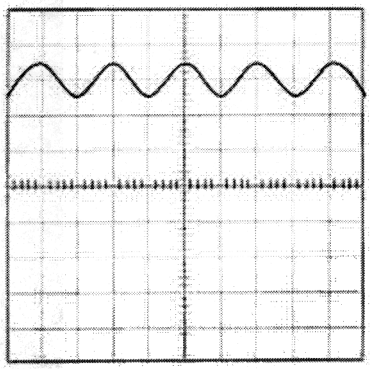


FIG 7

15. What types of wave can the function generator output?

16. What knob will expand the amplitude of the signal displayed?

7. What knob, on the oscilloscope will determine how many alternations are displayed on the oscilloscope screen?

18. To which connector, on the function generator, to apply a sine wave signal to a circuit?

19. (T or F) Increasing the input frequency will increase the resistance of a resistor.

20. (T or F) You can have both AC and DC in the same circuit.

21. What type of AC voltage does a DMM display?

22. What is the phase relationship between voltage and current across a resistor?

23. What are two types of cores in an inductor?

24. What type of core is used at high frequencies?

25. What is the formula for inductive reactance?

26. What is the total series inductance in FIG 8?

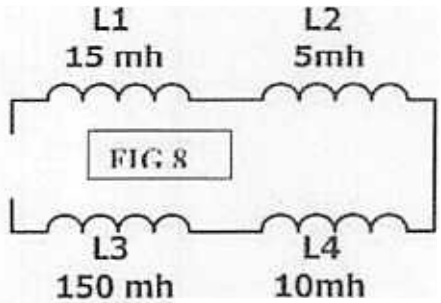


FIG 8

27. What is the inductive reactance in FIG 8 if Frequency is 100Hz?

28. Calculate: (FIG 9)

a. L_{EQ}:

b. L_T:

c. X_{L1}:

d. X_{LT}:

e. X_{LEQ}:

f. E_{LEQ}:

g. E_{L1}: _____

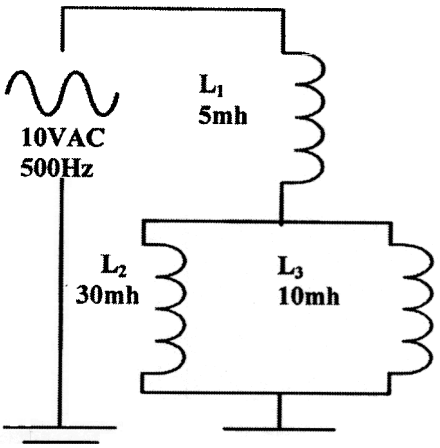


FIG 9

29. Calculate: (FIG 10)

a. L_T:

b. X_{LT}:

c. R_T: _____

d. Z: _____

e. I_T: _____

f. E_{R1}:

g. E_{R2}:

h. E_{L1}:

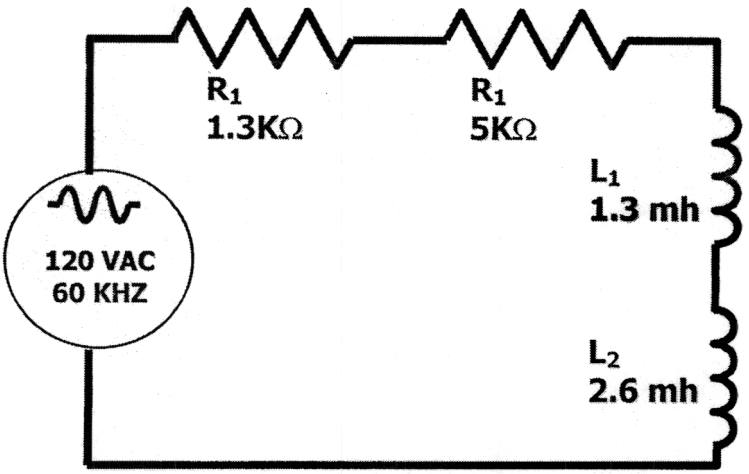


FIG 10

30. What is the phase relationship between voltage and current across an inductor?

31. What are the 3 parts of a capacitor?

32. (T or F) It matters how you place an electrolytic capacitor in a circuit?

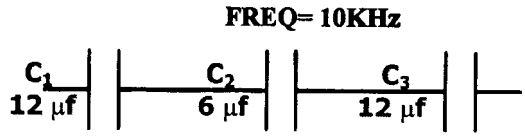
33. What is the formula for capacitive reactance?

34. Calculate: (FIG 11)

a. CT:

b. XCT

FIG 11

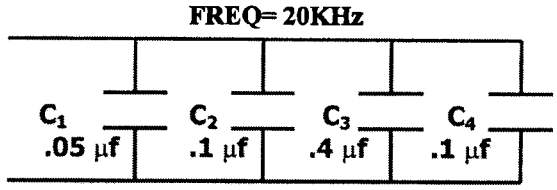


35. Calculate: (FIG 12)

a. CEQ:

b. XCEQ:

FIG 12



36. Calculate: (FIG 12)

a. CEQ: _____

b. C_T: _____

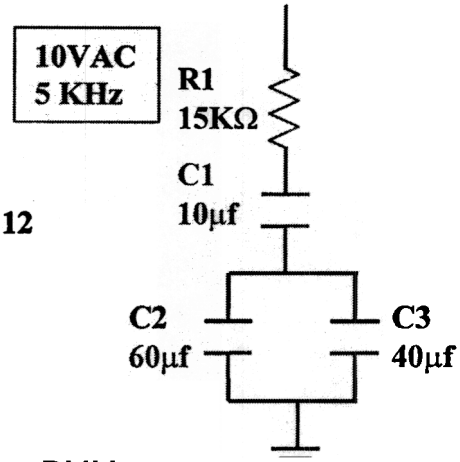
c. X_{CEQ}:

d. X_{CT}: _____

e. Z: _____

f. E_{CEQ}: _____

FIG 12



37. T or F You can measure capacitive reactance with a DMM.

38. What happens to capacitive reactance when frequency increases?

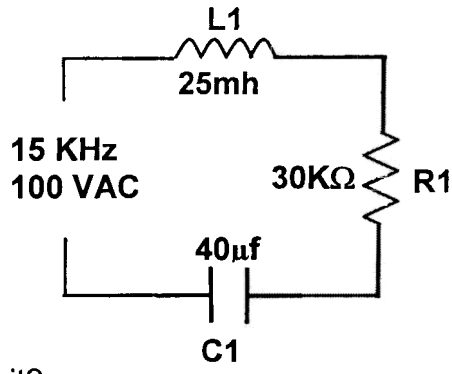
39. Calculate: (FIG 13)

a. X_{L1}:

b. X_{C1}: _____

c. Z: _____

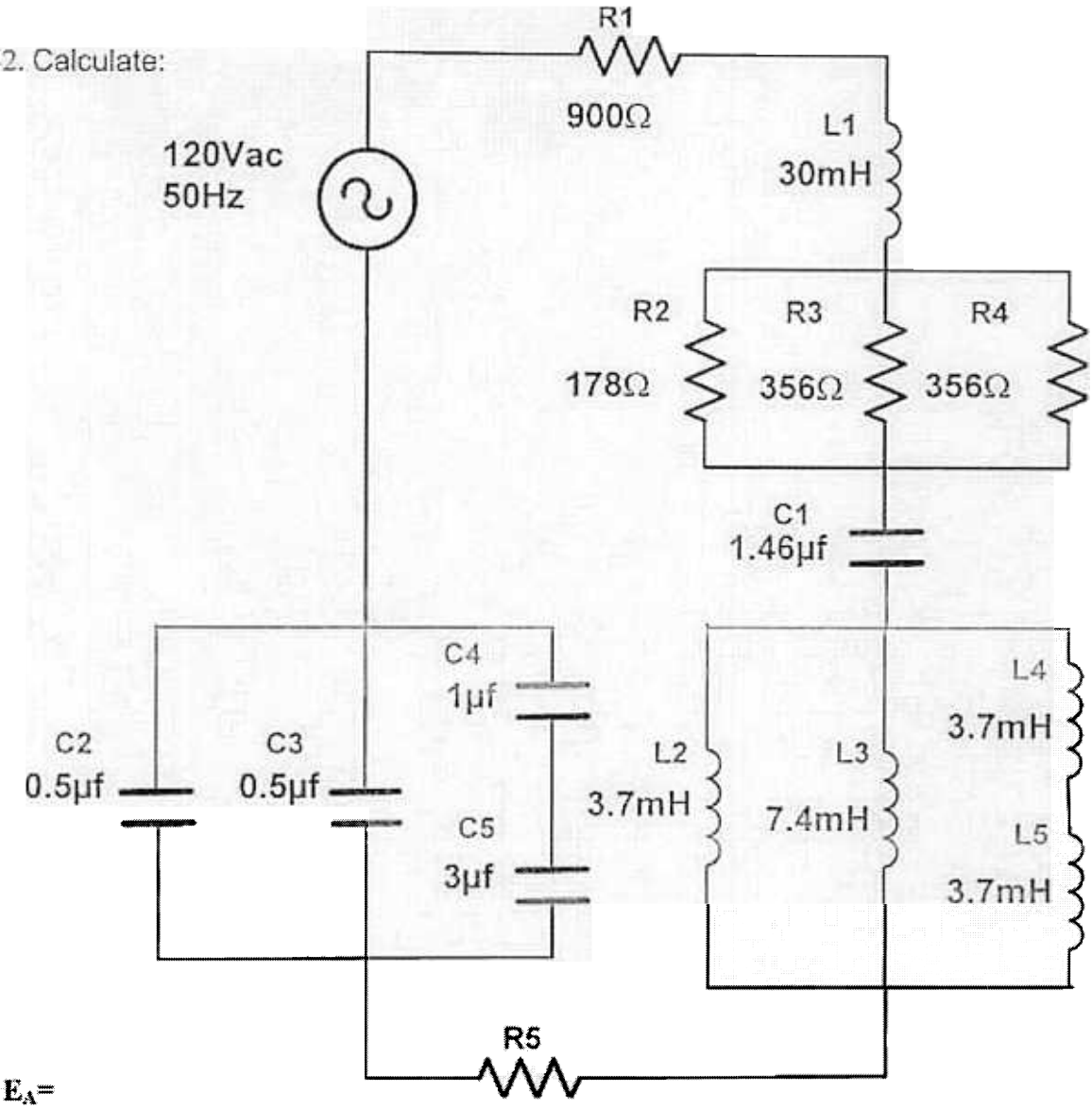
FIG 13



40. What is the formula for impedance in an LCR circuit?

41. What is the phase relation between E_C and E_L?

42. Calculate:



E_A=
FREQ=
X_{CEQ}=
X_{CT}=
X_{LEQ}=
X_{LT}=
REQ=
R_T=
Z=
I_T=
E_{R1}=
E_{REQ}=
E_{R5}=
E_{L1}=
E_{LEQ}=
E_{C1}=
E_{CEQ}=

CEQ=
X_{C1}=

LEQ=
X_{L1}=

I_{R2}=
I_{R3}=
I_{R4}=

43. Match:

_1. AC	A. Magnetic lines of force.
_2. Generator	B. Total opposition to current in an AC circuit.
_3. Sine Wave	C. Current leads Voltage by 90°.
_4. Period	D. Amount of time for a capacitor to charge 63%.
_5. Frequency	E. Current lags Voltage by 90°.
_6. Pulse Width	F. Two per period, one positive, the other negative.
_7. Flux Lines	G. Transformer winding with the load connected.
_8. Oscilloscope	H. Passes high freq. With max. voltage & attenuates the low freq.
_9. Function Generator	I. Process of transferring energy from primary to secondary due to expansion & contraction of magnetic field cutting across the secondary.
10.Inductor	J. Opposes change in current, Stores energy in electromagnetic field.
11.Inductor Phase relation	K. Used to analyze the wave shape & measure the amplitude, period, and pulse width of an AC signal.
12.Impedance	L. Passes low freq. With max. voltage & attenuates the high freq.
___13.Reactive Component	M. Changes the voltage and current of the AC on the primary to a different value on the secondary.
___14.Capacitor	N. Converts mechanical energy into electrical energy.
___15.Capacitor Phase Relation	O. Used to produce 3 types of AC signals at a wide range of frequencies at different amplitudes.
___16.Lowpass Filter	P. Voltage generated in relation with the angle of the rotor in the magnetic field.
17.Highpass filter	Q. Opposes change in voltage, stores energy in electrostatic field.
_18.Time Constant (TC)	R. Frequency sensitive device.
_19.Transformer	S. Transformer winding with the input signal connected.
_20.Mutual Inductance	T. Current that changes in amplitude & periodically reverses direction.
_21.Primary Winding	U. Time required for the rotor to make 1 complete revolution (360°).
_22.Secondary Winding	V. Number of complete revolutions (360°) of the generator in 1 second.
_23.Alternation	W. Time it takes to do 1 alternation, ½ of period

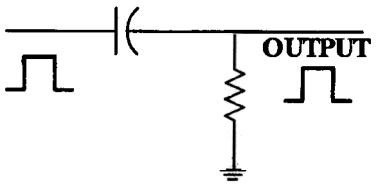
44. How many Time Constants (TC) does it take to charge/discharge 100% ?

45. What TC/PW ratios are considered Long?

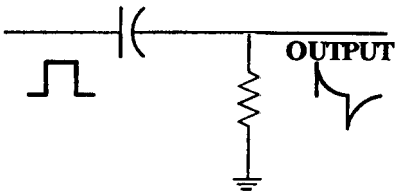
46. What TC/PW ratios are considered Short?

47. What is the range for the Medium TC/PW ratios?

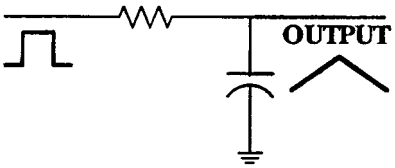
48. Identify (Differentiator, Integrator, Coupler)



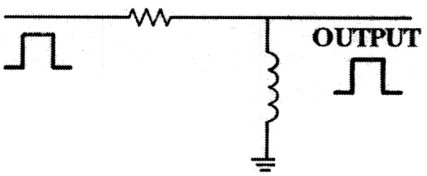
A. _____



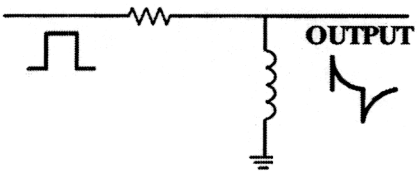
B. _____



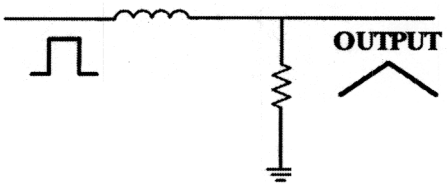
C. _____



D. _____



E. _____



F.

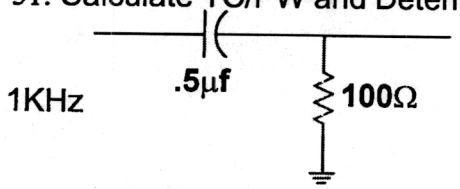
49. Calculate TC/PW and determine long, medium, or short.

	R	C	Freq	TC	PW	TC/PW	L/M/S
a.	2KΩ	0.1μf	25KHz				
b.	100Ω	0.04μf	1KHz				
c.	5KΩ	2μf	200Hz				

50. Calculate TC/PW and determine long, medium, or short.

	R	L	Freq	TC	PW	TC/PW	L/M/S
a.	20KΩ	100mh	100Hz				
b.	20KΩ	20mh	5KHz				
c.	1KΩ	10mh	25KHz				

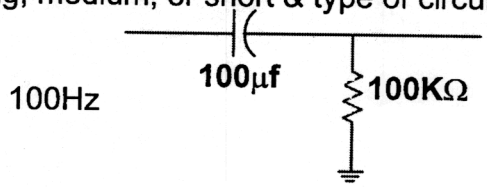
51. Calculate TC/PW and Determine long, medium, or short & type of circuit.



A: TC/PW_____

L/M/S_____

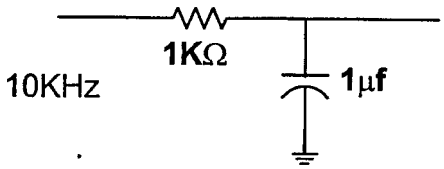
Type_____



B: TC/PW_____

L/M/S_____

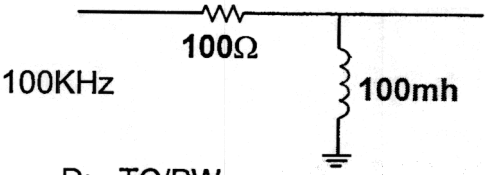
Type_____



C: TC/PW_____

L/M/S_____

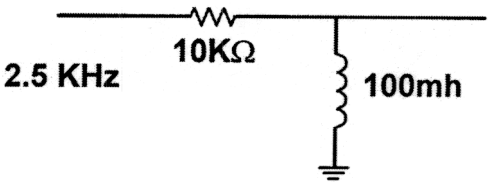
Type_____



D: TC/PW_____

L/M/S_____

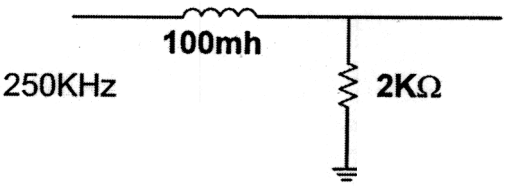
Type_____



E: TC/PW_____

L/M/S_____

Type_____



F: TC/PW_____

L/M/S_____

Type_____

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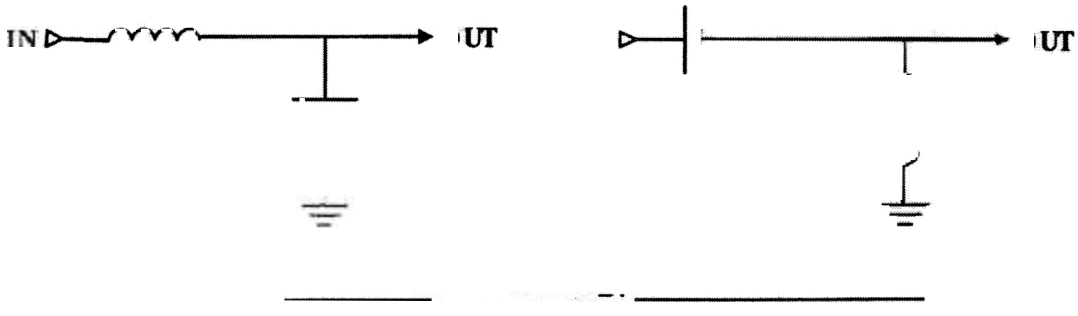

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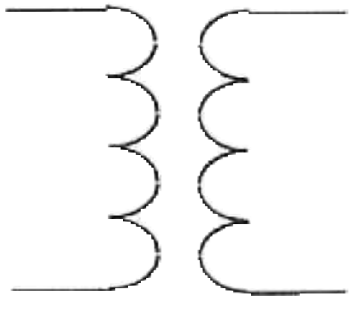

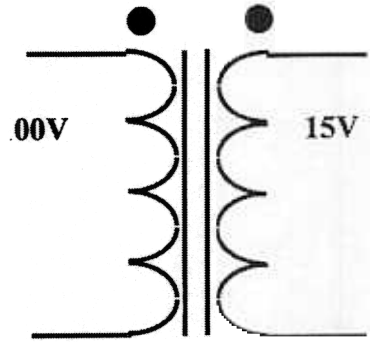

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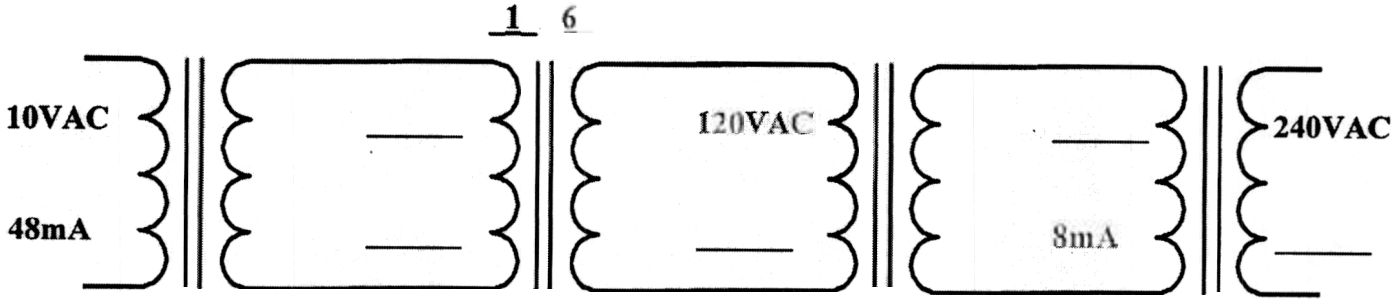


60. Write the formula for the following: (# in ( ) is # of formulas we covered for that item)

a. Time:

Frequency:

ii. Period (2):

iii. PW (2):

iv. TC (2):

b. Voltage:

i. RMS → PP:

RMS → P:

iii. P → PP:

iv. P → RMS:

v. PP → P:

vi. PP → RMS:

c. Resistors:

Parallel (3):

ii. Series:

d. Inductors:

Parallel (3):

ii. Series:

iii. Reactance:

e. Capacitors:

i. Parallel:

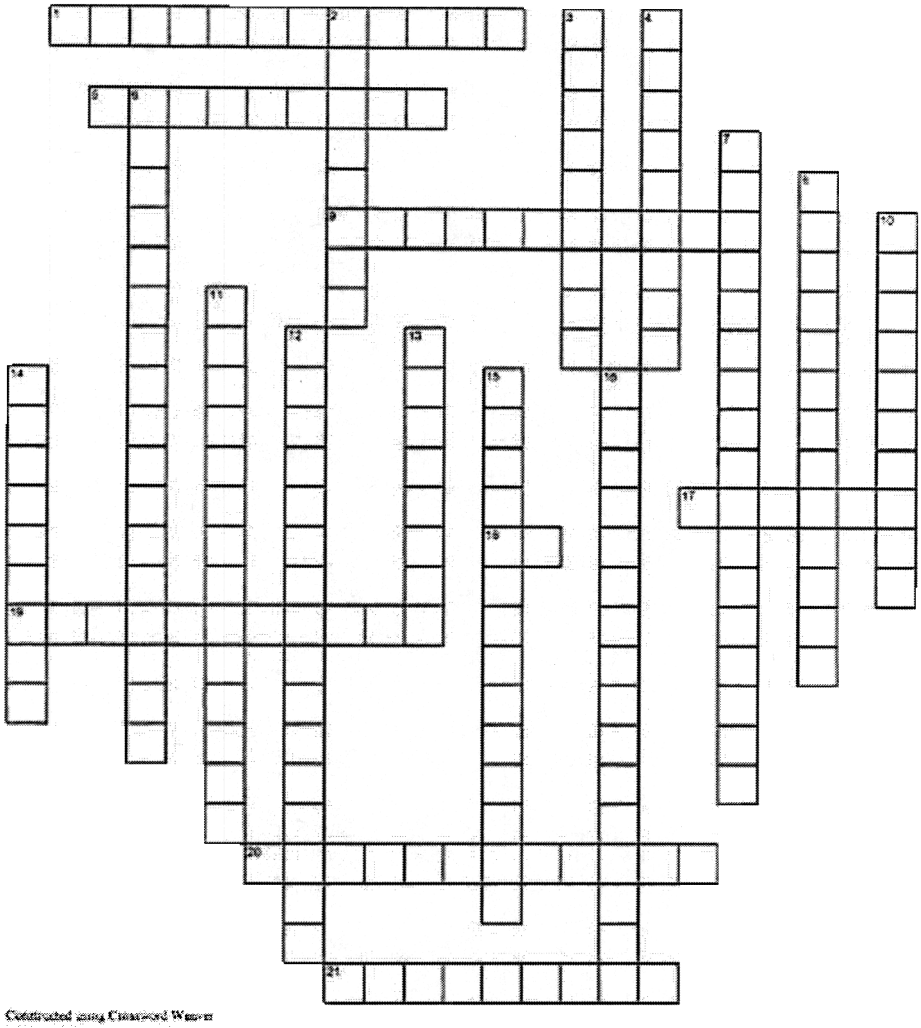
ii. Series (3):

iii. Reactance:

f. Impedance:

i. Z:

AC



Constructed using Crossword Weaver

ACROSS

1 Used to analyze the wave shape & measure the amplitude, period, and pulse width of an AC signal.
5 Number of complete revolutions of the generator in 1 second.
9 Two per period, one positive, the other negative.
17 Time required for the rotor to make 1 complete revolution.
18 Current that changes in amplitude & periodically reverses direction.
19 Changes the voltage and current of the AC on the primary to a different value on the secondary.
20 Amount of time for a capacitor or inductor to charge or discharge 63%.(2 words)
21 Magnetic lines of force.(2 words)

DOWN

2 Voltage generated in relation with the angle of the rotor in the magnetic field.(2words)
3 Total opposition to current in an AC circuit.
4 Opposes change in voltage, stores energy in electrostatic field.
6 Frequency sensitive device. (2 words)
7 Used to produce 3 types of AC signals at a wide range of frequencies at different amplitudes(2 words)
8 Passes low freq. With max. voltage & attenuates the high freq.(2 words)
10 Time it takes to do 1 alternation, ½ of period. (2 words)
11 Passes high freq. With max. voltage & attenuates the low freq.(2 words)
12 Transformer winding with the load connected.(2 words)
13 Opposes change in current, Stores energy in electromagnetic field.
14 Converts mechanical energy into electrical energy.
15 Transformer winding with the input signal connected.(2 words)
16 Process of transferring energy from primary to secondary due to expansion & contraction of magnetic field cutting across the secondary.(2 words)