

Mid-Term Exam

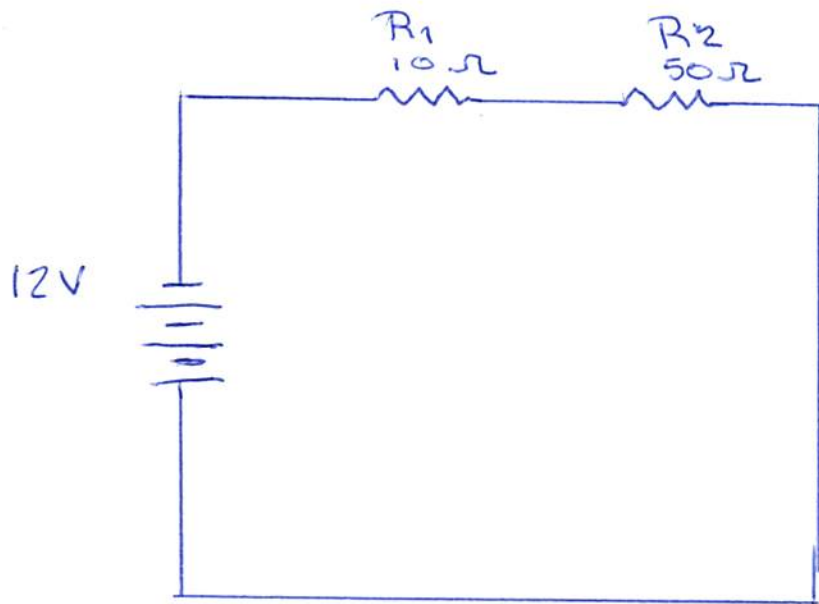
- 1) Define electrical current as it pertains to electrical circuits.
 - a. The difference in potential in a circuit.
 - b. The movement of electrons or electrical charge in a circuit.
 - c. The overall electrical resistance in a circuit.
 - d. None of the above.
- 2) Ohm's law is expressed as....
 - a. $I=E \times R$
 - b. $R=I \times E$
 - c. $E=I \times R$
 - d. $P=I \times E$
- 3) Direct current flows only in one direction.
 - a. True
 - b. False
- 4) When measuring the electrical resistance in a circuit the multi-meter should be set to what scale?
 - a. Ω
 - b. V
 - c. A
 - d. C.
- 5) A multi-meter can be used to check a blown fuse using only the V setting.
 - a. True
 - b. False
- 6) When checking a fuse with a multi-meter it is best to test it in a de-energized circuit using the Ohm's setting on a multi-meter.
 - a. True
 - b. False
- 7) Define voltage.
 - a. The electromotive force or potential difference across a circuit component or the difference in potential of the circuit's power source.
 - b. Current flow in a circuit past a node.
 - c. The total power consumed by the components in the circuit.
 - d. None of the above.
- 8) The metric term kilo is equivalent to 1000X... therefore a kilowatt is 1000 watts.
 - a. True
 - b. False
- 9) AC current is an acronym that denotes...
 - a. Current that flows only in one direction.
 - b. Current that alternates between a positive and negative value and operates at 60 Hz in the United States.
 - c. Current that flows from anode to cathode in a circuit

- d. Both a. and b.
- 10) A capacitor can be used to filter out electrical noise or spurious spikes.
- a. True
 - b. False
- 11) A material that is a good electrical insulator...
- a. Easily allows current to pass through it.
 - b. Makes an excellent an excellent conductor.
 - c. Does not readily allow current to pass through it or makes a very poor conductor.
 - d. Can also be used as a voltage source.
- 12) What is an electron?
- a. A negatively charged sub-atomic particle
 - b. A positively charge sub-atomic particle
 - c. A neutrally charged sub-atomic particle
- 13) A continuity check on an electrical circuit determines if it has a complete path for current flow.
- a. True
 - b. False
- 14) Two good examples of a voltage source are a generator and a battery.
- a. True
 - b. False
- 15) If a fuse is blown or the filament has burned into what will be its ohm value of resistance read on a multi-meter's screen or display?
- a. Zero ohms (0)
 - b. Infinity (OL or ∞)
 - c. It is determined by the resistance of the circuit.
- 16) Before using a multi-meter, one must set it to the appropriate setting and scale and check it on a known source.
- a. True
 - b. False
- 17) A clamp on ammeter requires that the circuit be broken and the leads or test points be "inserted" into the circuit.
- a. True
 - b. False
- 18) Kirchoff's Current Law states...
- a. The current divides when traveling down a conductor.
 - b. The sum of the currents leaving a node will equal those entering a node and are algebraically equal to zero.
 - c. The sum of the currents entering a node are additive and create a new value.
 - d. None of the above.
- 19) Voltage drops in a series circuit will always total up to equal the applied voltage source and the algebraic expression will be equal to zero.
- a. True
 - b. False

20) Voltage of a branch in a parallel resistive circuit will equal that of the voltage source.

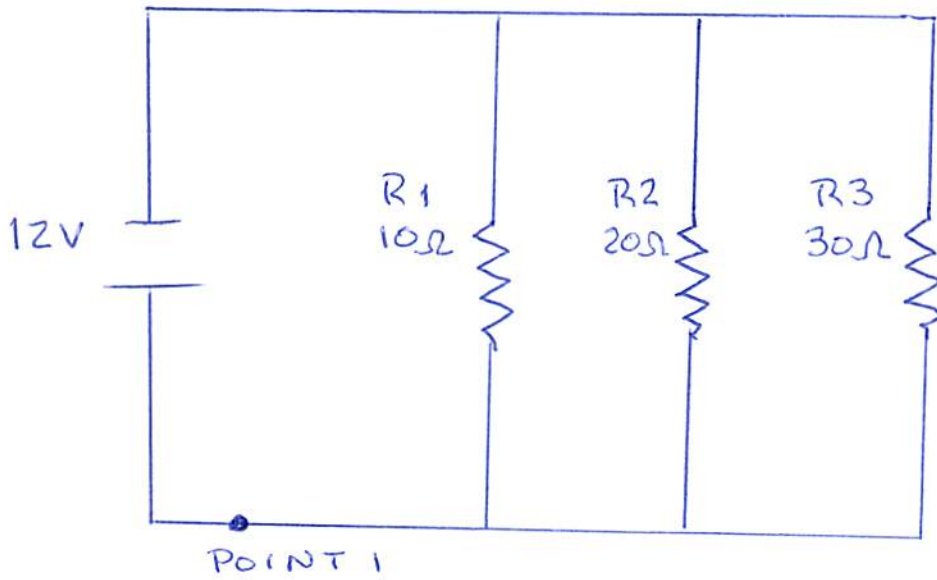
- a. True**
- b. False**

21. ANALYZE THE FOLLOWING CIRCUIT.



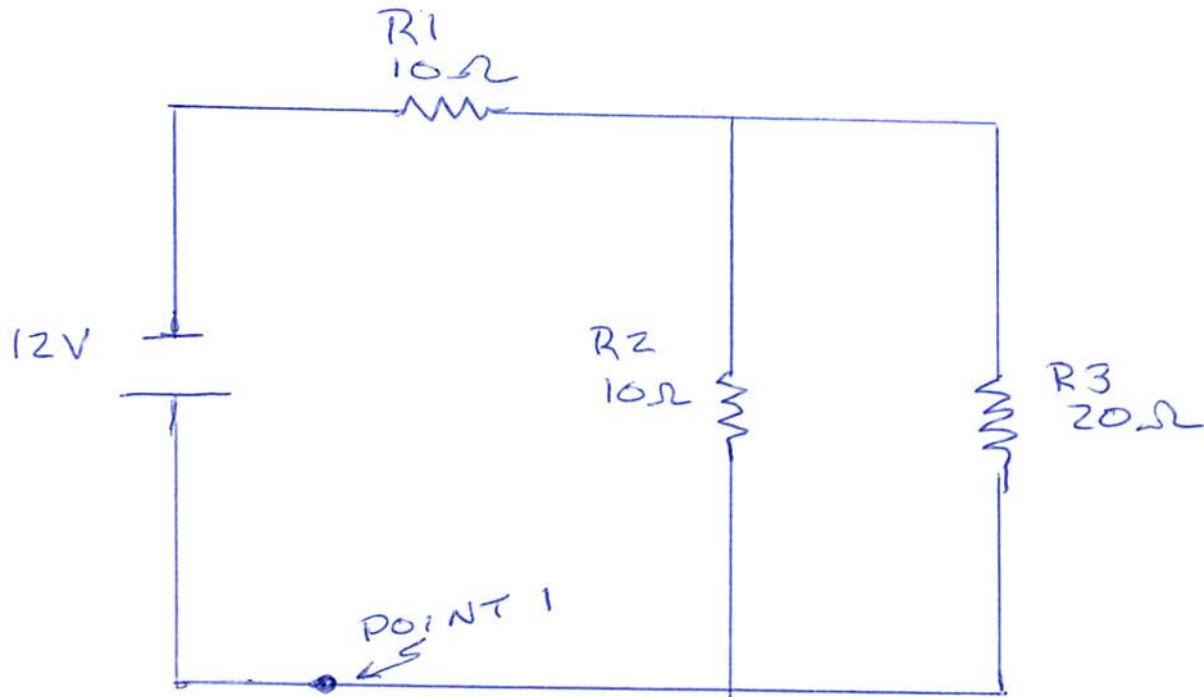
- WHAT IS THE TOTAL CIRCUIT RESISTANCE?
- WHAT IS THE CURRENT FLOW IN THE CIRCUIT?
- WHAT IS THE POWER CONSUMED IN THE CIRCUIT?
- WHAT IS THE VOLTAGE DROP OF R_1 ?

22. ANALYZE THE FOLLOWING CIRCUIT.



- WHAT IS THE EQUIVALENT RESISTANCE OF THE CIRCUIT?
- WHAT IS THE TOTAL CURRENT FLOW AT POINT 1?
- WHAT IS THE CURRENT FLOW THROUGH R_1 ?
- WHAT IS THE POWER CONSUMED BY THE CIRCUIT?

23.



- WHAT IS THE R_{EQ} OF THE CIRCUIT PORTION $R_2 \text{ \& } R_3$?
- WHAT IS THE TOTAL COMBINE RESISTANCE OF THE CIRCUIT?
- WHAT IS THE CURRENT FLOW AT P1?
- WHAT IS THE CURRENT FLOW THROUGH R_3 ?
- WHAT IS THE VOLTAGE DROP AT R_1 ?

24) When analyzing a series parallel resistive circuit one must determine the R_{eq} of the parallel portions of the circuit and add this to any series resistors to get the total circuit resistance.

- a. True**
- b. False**

25) A multi-meter comes in either analog or digital versions.

- a. True**
- b. False**

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