**Superposición**

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2023-1283

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Resumen— Este practica se trató en analizar el voltaje de caída en una resistencia determinada con diferentes fuentes en este caso 3, para el desarrollo de esta práctica usamos el método de superposición para poder calcular la caída en dicha resistencia con cada fuente de manera individual y el comportamiento que hubo en esta, para la comprobación de esta práctica usamos un osciloscopio para lograr ver las ondas con las diferentes frecuencias suministradas por cada fuente, para esta práctica hicimos uso de fuentes AC y DC, y verificamos los resultados calculados con la amplitud obtenida en la onda observada en el osciloscopio en multisim.

*Abstract*— This practice was about analyzing the drop voltage in a given resistance with different sources in this case 3, for the development of this practice we used the superposition method to be able to calculate the drop in said resistance with each source individually and the behavior that was in this, to verify this practice we used an oscilloscope to see the waves with the different frequencies supplied by each source, for this practice we made use of AC and DC sources, and we verified the calculated results with the amplitude obtained in the wave observed on the oscilloscope in multisim.

Keywords— Bobina, resitencias, fuente, capacitor, onda, etc…

1. INTRODUCCIÓN

A continuación, esta práctica tiene como objetivo analizar un circuito determinado y comprobar la caída de voltaje en una resistencia especifica, analizando la caída obtenida usando 3 fuentes AC y DC de manera individual, y cómo se comporta al tener todas las fuentes en el mismo circuito, al igual que las ondas que se generan.

1. MARCO TEORICO

## **¿Qué es la superposicion?**

El teorema de superposición establece que, en un circuito lineal con varias fuentes, la corriente y el voltaje para cualquier elemento en el circuito es la suma de las corrientes y voltajes producidos por cada fuente que actúa de manera independiente. Para calcular la contribución de cada fuente de forma independiente, todas las demás fuentes deben eliminarse y reemplazarse sin afectar el resultado final. Al eliminar una fuente de voltaje, su voltaje debe establecerse en cero, lo que equivale a reemplazar la fuente de voltaje con un cortocircuito. Al eliminar una fuente de corriente, su corriente debe establecerse en cero, lo que equivale a reemplazar la fuente de corriente con un circuito abierto.

Cuando suma las contribuciones de las fuentes, debe tener cuidado de tener en cuenta sus signos. Es mejor asignar una dirección de referencia a cada cantidad desconocida, si aún no se ha dado. El voltaje o corriente total se calcula como la suma algebraica de las contribuciones de las fuentes. Si una contribución de una fuente tiene la misma dirección que la dirección de referencia, tiene un signo positivo en la suma; si tiene la dirección opuesta, entonces un signo negativo.

## **¿Qué es una bobina?**

Una bobina es un componente pasivo de un circuito eléctrico que almacena energía en forma de campo magnético a través de la inducción. Está compuesta por espiras de alambre enrolladas en forma cilíndrica y se fabrica enrollando un hilo conductor sobre un material central.

## **¿Qué es un capacitor?**

Un condensador eléctrico o capacitor es un dispositivo pasivo, utilizado en electricidad y electrónica.​​ Está formado por un par de superficies conductoras, generalmente en forma de láminas o «placas», en situación de influencia total separadas por un material dieléctrico o por vacío.​​

1. Componentes utilizados:

* Capacitor
* Bobina
* Resistencias
* Protoboard
* Fuentes AC y DC
* Osciloscopio
* Generador de funciones

1. Programas de simulación utilizados:

* Multisim
* Free View

1. Fórmulas para el Desarrollo del circuito:

* XL = 2πFL
* XC =
* Z =
* Z = R1 + R2
* V =
* I =

Calculos teoricos

Imagen que contiene texto

Descripción generada automáticamente

Carta

Descripción generada automáticamente con confianza media

Fig. Diagrama con la fuente AC 750hz y la fuente de DC 12V

Diagrama

Descripción generada automáticamente

Diagrama, Esquemático

Descripción generada automáticamente

Imagen que contiene circuito

Descripción generada automáticamente

Fig. Onda simulada en el osciloscopio de multisim.

Diagrama, Esquemático

Descripción generada automáticamente

Fig. Diagrama con la fuente DC 12V

Calendario

Descripción generada automáticamente con confianza media

Fig. Onda simulada en el osciloscopio de multisim.

Diagrama

Descripción generada automáticamente

Fig. Diagrama con la fuente AC de 600hz

Interfaz de usuario gráfica, Gráfico, Gráfico de líneas

Descripción generada automáticamente

Fig. Onda simulada en el osciloscopio de multisim.

Diagrama, Esquemático

Descripción generada automáticamente

Fig. Diagrama con las tres fuentes.

Interfaz de usuario gráfica, Gráfico, Gráfico de líneas

Descripción generada automáticamente

Fig. Onda simulada en el osciloscopio de multisim.

**Conclusion**

En esta práctica, aprendí el método de superposición en fuentes AC, ya que, anteriormente había aplicado el método de superposición en DC. Este tema nos ayuda bastante para comprender el comportamiento de las señales de corriente altena preparándonos para nuestro desarrollo profesional.

**Referencia**

**https://www.youtube.com/watch?v=pRkYtGaDToE**

**https://www.youtube.com/watch?v=15TK3nhpvA0**

**https://www.tina.com/es/superposition-in-ac-circuits/**

**https://es.khanacademy.org/science/electrical-engineering/ee-circuit-analysis-topic/ee-ac-analysis/v/ee-ac-analysis-superposition**

**https://dademuchconnection.wordpress.com/2019/11/08/principio-de-superposicion-analisis-de-circuitos-electricos/**

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## Abbreviations and Acronyms

Define abbreviations and acronyms the first time they are used in the text, even after they have been defined in the abstract. Abbreviations such as IEEE, SI, MKS, CGS, sc, dc, and rms do not have to be defined. Do not use abbreviations in the title or heads unless they are unavoidable.

## Units

* Use either SI (MKS) or CGS as primary units. (SI units are encouraged.) English units may be used as secondary units (in parentheses). An exception would be the use of English units as identifiers in trade, such as “3.5-inch disk drive”.
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Identify applicable funding agency here. If none, delete this text box.

* Use a zero before decimal points: “0.25”, not “.25”. Use “cm3”, not “cc”. (*bullet list*)

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*a**b* 

Note that the equation is centered using a center tab stop. Be sure that the symbols in your equation have been defined before or immediately following the equation. Use “(1)”, not “Eq. (1)” or “equation (1)”, except at the beginning of a sentence: “Equation (1) is . . .”

## Some Common Mistakes

* The word “data” is plural, not singular.
* The subscript for the permeability of vacuum **0, and other common scientific constants, is zero with subscript formatting, not a lowercase letter “o”.
* In American English, commas, semicolons, periods, question and exclamation marks are located within quotation marks only when a complete thought or name is cited, such as a title or full quotation. When quotation marks are used, instead of a bold or italic typeface, to highlight a word or phrase, punctuation should appear outside of the quotation marks. A parenthetical phrase or statement at the end of a sentence is punctuated outside of the closing parenthesis (like this). (A parenthetical sentence is punctuated within the parentheses.)
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* There is no period after the “et” in the Latin abbreviation “et al.”.
* The abbreviation “i.e.” means “that is”, and the abbreviation “e.g.” means “for example”.

An excellent style manual for science writers is [7].

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1. Table Type Styles

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| --- | --- | --- | --- |
| Table column subhead | Subhead | Subhead |
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Figure Labels: Use 8 point Times New Roman for Figure labels. Use words rather than symbols or abbreviations when writing Figure axis labels to avoid confusing the reader. As an example, write the quantity “Magnetization”, or “Magnetization, M”, not just “M”. If including units in the label, present them within parentheses. Do not label axes only with units. In the example, write “Magnetization (A/m)” or “Magnetization {A[m(1)]}”, not just “A/m”. Do not label axes with a ratio of quantities and units. For example, write “Temperature (K)”, not “Temperature/K”.

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##### References

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1. G. Eason, B. Noble, and I. N. Sneddon, “On certain integrals of Lipschitz-Hankel type involving products of Bessel functions,” Phil. Trans. Roy. Soc. London, vol. A247, pp. 529–551, April 1955. *(references)*
2. J. Clerk Maxwell, A Treatise on Electricity and Magnetism, 3rd ed., vol. 2. Oxford: Clarendon, 1892, pp.68–73.
3. I. S. Jacobs and C. P. Bean, “Fine particles, thin films and exchange anisotropy,” in Magnetism, vol. III, G. T. Rado and H. Suhl, Eds. New York: Academic, 1963, pp. 271–350.
4. K. Elissa, “Title of paper if known,” unpublished.
5. R. Nicole, “Title of paper with only first word capitalized,” J. Name Stand. Abbrev., in press.
6. Y. Yorozu, M. Hirano, K. Oka, and Y. Tagawa, “Elec

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