شكراً لتحميلك هذا الملف من موقع المناهج الإماراتية

لعنوان أسئلة وأجوبة وحدة الحث الكهرومغناطيسي درس التيار المستحث الجزء الثاني

تاريخ إضافة الملف على موقع المناهج: 2024-04-26 09:58:49

إعداد: رحمة متولي

التواصل الاجتماعي بحسب الصف الثاني عشر العام

اضغط هنا للحصول على جميع روابط "الصف الثاني عشر العام"

روابط مواد الصف الثاني عشر العام على تلغرام

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المزيد من الملفات بحسب الصف الثاني عشر العام والمادة فيزياء في الفصل الثالث

1	أسئلة وأجوبة وحدة الحث الكهرومغناطيسي درس التيار المستحث
2	حل أسئلة الامتحان النهائي التعويضي
3	حل أسئلة الامتحان النهائي الالكتروني بريدج

المزيد من الملفات بحسب الصف الثاني عشر العام والمادة فيزياء في الفصل الثالث	
4	أسئلة الامتحان النهائي الورقي بريدج
5	ملخص شامل الوحدة الثامنة التداخل والحيود

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Tel / 0557368293

Physics

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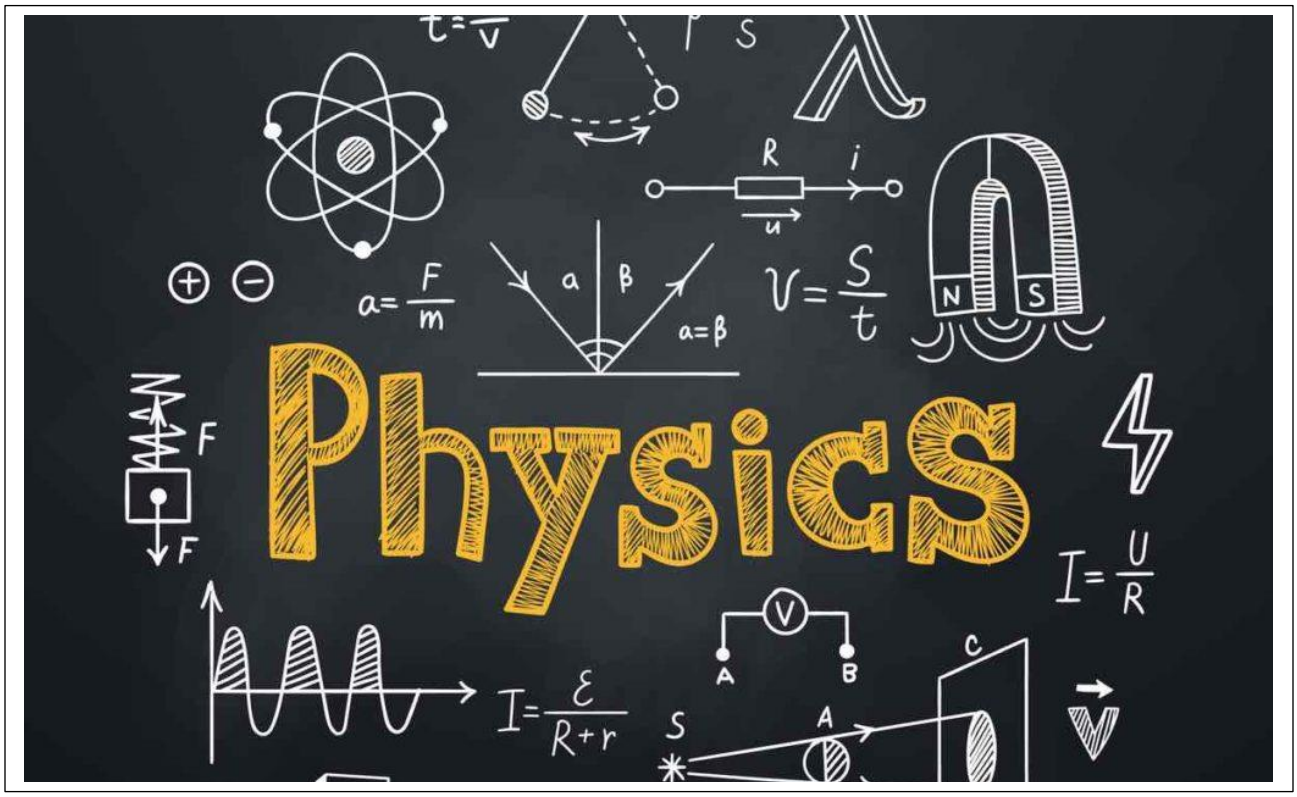
2023 -2024



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Tel / 0557368293

Electromagnetic induction

Current induction (part 2)

The Electrical generator

Is operation converts mechanical energy to electrical energy .

What is the components of the electric generators?

1- *Number of wire loop in a magnetic field.*
2- *The iron core (which concentrated the magnetic field).*
3- *The rotor (the iron and wire make up generator's armature.*

How The current produced by generator ?

1- *The armature rotate in magnetic field.*

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2- *wire loops cut magnetic field line.*
3- *The EMF produced.*

How increases the EMF in the generator ?

EMF= LBV so it depend on the length of the wire. When the wire loop increase (L) will increase and the EMF will increase and the larger EMF have the stronger wire.

What happen when the loop rotate (in the horizontal position)?

The strength and the direction of the current will change and the strongest current when the loop is horizontal and the loop's motion is perpendicular to the field.

What happen when the loop rotate (in the vertical position)?

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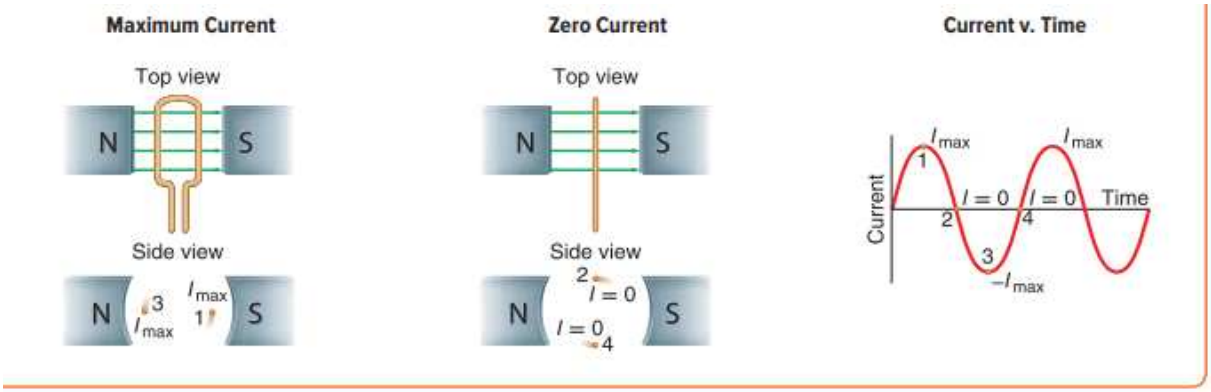
The loop will cut fewer magnetic field line per unit of time and the current decrease and the current = zero because the wire moves parallel to the magnetic field.

The current will change from zero to max value and back zero during each half turn.

When current will reverses?

Each time the loop turns through 180 degree.



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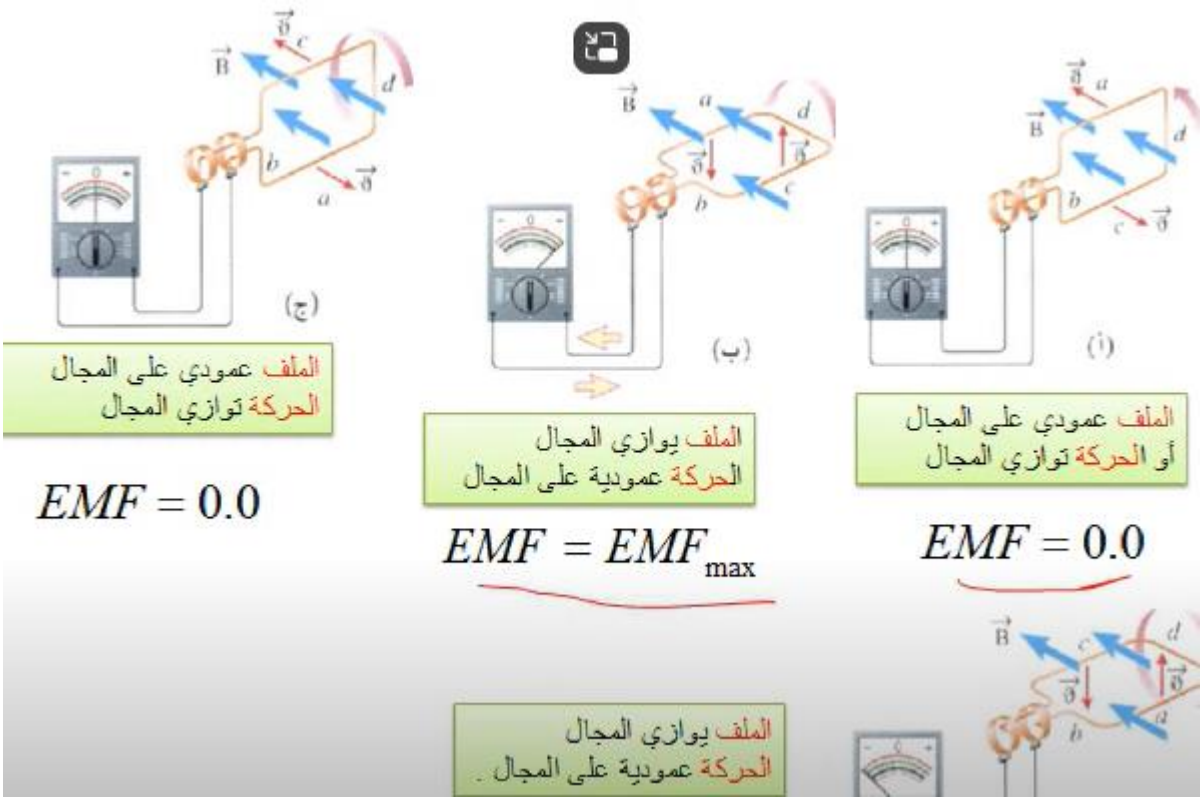

How can the generators take the power?

By the water heated by burning fossil fuels – fissioning uranium- wind and moving water- by the people hand.

What is the difference between the motor and generator?

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1-Generator ------convert mechanical energy to electrical energy.
Motor -----convert electrical energy to mechanical energy.

2- the generator connects to a circuit by a brush-slip-ring device instead of the commutator .

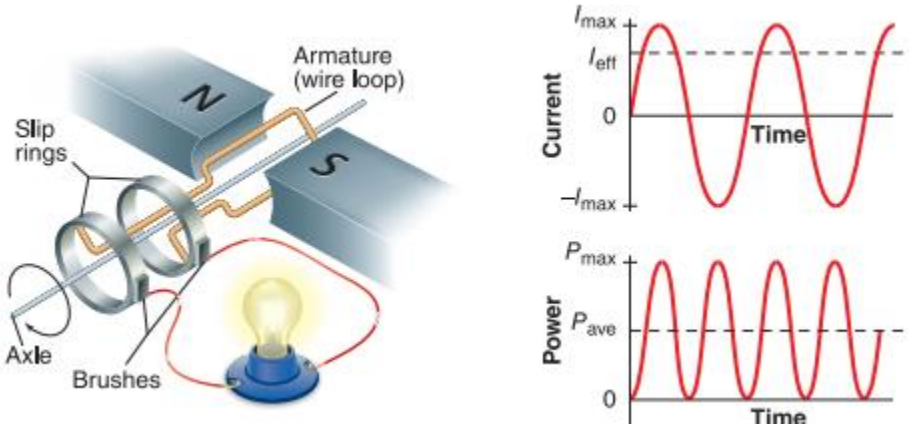

Figure 8 This AC generator is similar in construction to an electric motor except it connects to a circuit using a brush-slip-ring device instead of a commutator. As the armature rotates, the direction of the current alternates in time (top right). The power delivered by the generator is always positive (bottom right).

Identify In what position is the armature when current is zero?

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What is the two type of generators and the difference between it?

DC generator	***AC generator***
Charges move in a single direction as battery	*The current alternates from + to – and revers it direction*
Current is in one direction because the wires connect to a circuit by a commutator	*Current is in two direction use a slip-ring device to connect wires to circuit.*

Alternating current :

is an electric current that periodically reverses direction and changes its magnitude continuously with time, in contrast to *direct current* (DC), which flows only in one direction.

power: product of the current and the potential differences .

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The power is always positive because I and V are either positive or both negative.

Average power P(AC) is half the maximum power = ½ p AC max

Effective current :-

EFFECTIVE CURRENT

Effective current is equal to $\frac{\sqrt{2}}{2}$ times the maximum current.

$$I_{eff} = \left(\frac{\sqrt{2}}{2}\right) I_{max} = 0.707 I_{max}$$

EFFECTIVE POTENTIAL DIFFERENCE

Effective potential difference is equal to $\frac{\sqrt{2}}{2}$ times the maximum potential difference.

$$V_{eff} = \left(\frac{\sqrt{2}}{2}\right) V_{max} = 0.707 V_{max}$$

RMS

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APPLICATIONS

5. A generator develops a maximum potential difference of 170 V.

a. What is the effective potential difference?

b. A 60 W lamp is placed across the generator with an I_{max} of 0.70. What is the effective current through the lamp?

c. What is the resistance of the lamp when it is working?

6. The RMS potential difference of an AC household outlet is 117 V. What is the maximum potential difference across a lamp connected to the outlet? If the RMS current through the lamp is 5.5 A, what is the lamp's maximum current?

7. If the average power used over time by an electric light is 75 W, what is the peak power?

8. CHALLENGE An AC generator delivers a peak potential difference of 425 V.

a. What is the V_{eff} in a circuit connected to the generator?

b. The resistance is $5.0 \times 10^2\ \Omega$. What is the effective current?