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DEPARTMENT: COMPUTER SCIENCE

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LEVEL:100L

6a

APPLICATION OF FARADAYS LAW

 The coil in the electric guitar called the pickup coil is placed near the vibrating guitar string which is made of a metal that can be magnetized A permanent magnet inside the coil magnetic the Profurn of the string nearest the coil

 When the string vibrates at some frequency its magnetized segment produces a changing magnetic flux through the coil the changing flux induces an e.m.f in the coil that is fed to an amplifier the output of the amplifiers is sent to the loudspeaker ,which produces the sound waves we hear.

6bi

N=300; R=2Ω;

A=10×10=100cm2=0.01m2

B=10T;t=0.5sec

E=-Nd÷dt

Where

E=

E=

E=

6bii

E=IR(Ohm ‘slaw)

I=E

6c.

A=5cm

N=75turns; R=8

I=0.1A

E=

Where

And E=IR

IR=

0.1

0.8=

dB

Db

3a

1.volume charge density

Where V=volume;

q=Electric charge

ii. surface charge density

where A=Area; q= electric charge

iii. linear charge density “

3b

The force F exerted on a test charge q by an electric field is given as F=QE An external force required to move the test charge q at a constant velocity from a point A to a point

The work done in moving the charge from A to B is given as

dW= F.dl putting (1) into (2), we have

dw=-qEdl (3)

The total work done in moving the test charge from A to B is W(A

W(A

From definition of electric potential difference

VB

Therefore VB-VA=-

3c

Q1=10

Q2=-2µC=-2

K=9

Let p be a point along the x-axis where electric potential iszero.

If p is at a point x between Q1 and Q2

Vp=-

Vp=-

-

9

36

36

36

X=3.3m

4a

Magnetic flux: The flux magnetic flux is defined as the strength of magnetic field represented by lines of force. Magnetic flux is usually represented by the symbols

4b.

M=9.11

E=1.6

F=

F=

5a

The Biot-savart law states that the magnetic field db produced by a current element Idl at a certain point is given by db=(

Where a is the distance from the point to the element and ~~o~~ isthe angle between the element and the line joining it to the point . the constance

2a

Electric field is a region around a charge where electric forces are felt. Electric field intensity is the force per unit charge at a point in an electric field