

EMF

Electromagnetism :-

{ How to write in AKU }

for ECE - (4th sem)

And
08/04/20

शरीर है

Physics

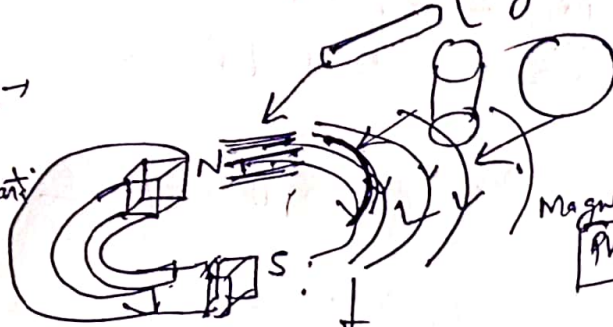
EE

Used to study

{ Electric Phenomenon }
{ Magnetic Phenomenon }

field :-

any magnet considered
it has its own
effect in a
region
surrounding it.



Magnet is physical function in region of

The effect can be placed by
placing another magnet near the
first magnet.

Such an effect can be defined by
a particular physical function

effect $\rightarrow$ Physical function
Define
By

$$f(x) = f(y)$$

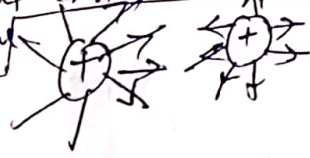
$$y^2 = 4ax$$

$$f(x, y)$$

$$x^2 + y^2 = r^2$$

$$f(x, y, z)$$

field can be defined as the region in which
at each part exist a compositional value of
physical function



many charge $\rightarrow$ produce current $\rightarrow$ carrying conductor $\rightarrow$ magnetic field

Electric $\rightarrow$ field $\rightarrow$ magnetic field

Electromagnetic field

time varying $\rightarrow$ magnetic
time independent $\rightarrow$ electric
force $\rightarrow$ direction
force $\rightarrow$ direction
force $\rightarrow$ direction

Scalar, vector $\rightarrow$ quantity

single real No
 $+v, -ve$

T, m, v, E, S, Q
value speed

Direction - x in describing

Scalar & E quantity & which is fully covered by
its magnitude

vector
Magnitude
 $\pm$ Direction
Specific
Direction
3D
3 dimensional
E-M
F, V, Dist, Intensity, acceleration

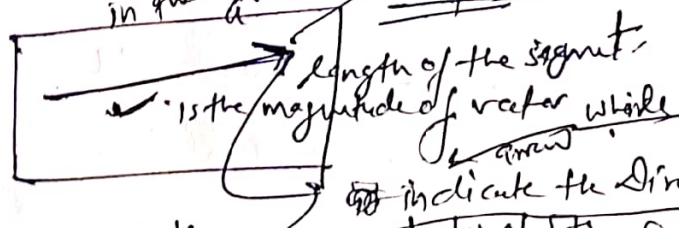
Scalar field - ~~quantity at different points in space~~ is called scalar field
~~quantity at different points in space~~
Define position

- ✓ Temp. of atmosphere
- ✓ ~~Sound~~ intensity of ~~ear~~ in an auditorium
- ✓ Light intensity in a room, vacuum.
- ✓ Atm. pressure in ~~center~~ peripheral region

Vector field - quantity at different points in space & specified dir - to define fields
vectors
 then correspondingly field is called vector field

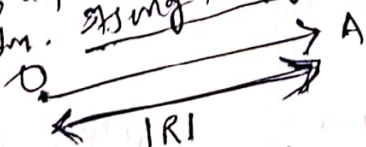
- ✓ Gravitational force on a mass in space
- ✓ velocity of particle in a moving fluid
- ✓ wind velocity of atm.
- ✓ voltage gradient off in a cable
- ✓ Displacement of fly & bird in space
- ✓ mag. field - (N-S)

Representation of a vector - in two dimensional
a vector can be represented by
in a plane

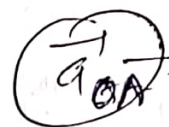


str. line with an arrow in plane

Unit vector has a fn. to indicate the direction. strongly unit



$$|\vec{OA}| = |\vec{R}| = R$$



indicates the unit vector. Unit value can be unit

Unit →

$$|\vec{OA}| = \vec{a}_{OA} \cdot R$$

$$\vec{a}_{OA} = \frac{\vec{OA}}{R}$$

$$\vec{OA} = |\vec{OA}| \vec{a}_{OA} = R \cdot \vec{a}_{OA}$$

Consider a unit vector $\vec{a}_{OA}$ in the direction of $\vec{OA}$