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PHY101 MCQS 22 TO 45 LECTURE WISE BY NAJAM AHMED

LECTURE 22

the force of attraction or repulsion acting along a straight line between two electric charges is directly proportional to the product of the charges and inversely to the square of the distance between them is called:

Ohm law

Columb's law check this

Ainstain law

None of the given

The constant of proportionality will take different values depending upon the:

Law

Mass

quantity

units pg#61

MKS system, charge is measured in:

Ohm law

Columb pg#61

Ainstain law

None of the given

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Charge is quantized. This means that charge comes in …….unit/s:

Certain pg#61

One

Two

Three

charge is never:

created or destroyed

created

destroyed

created or destroyed both pg#61

the total charge at an earlier time is equal to the charge at a

later time pg#61

The electric field is also an example of a

vector field pg#62

Scalar field

Megnatic field

None

It is easy to find the torque experienced by an electric dipole that is placed in a uniform electric field

True pg#63

false

LECTURE 23

when charges are continuously distributed over some region of space, For this, we need to break up the region into little pieces to calculate:

https://vustdentshelp.blogspot.com/

magnetic field

both

electric field pg#64

none of the given

The …… of any vector field is a particularly important concept.

Flux pg#65

Point

Direction

Magnitude

……..is the measure of the "flow" or penetration of the field vectors through an imaginary fixed surface

Flux pg#65

Point

Direction

Magnitude

LECTURE 24

The electric potential (or simply potential) is the energy of a unit charge in an:

electric field pg#68

megnatic field

both

none

Potentials are more positive in regions which have more positive charge.

True pg#68

False

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The electric potential is a scalar quantity

True pg#68

False

The electric potential exists only because the electrostatic force is conservative.

True pg#68

False

LECTURE 25

The electric field comes from the charges that have been pushed to the plates by the battery

True pg#69

false

The amount of charge pushed on to the conductors is proportional to the potential difference between the battery terminals.

True pg#69

false

When a battery is connected to a capacitor, positive and negative charges appear on the opposite plates

True pg#71

False

LECTURE 26

Current flows because something forces it around a circuit.

True pg#73

False

EMF stands for: electromotive force.

True pg#73

False

EMF is not a force.

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True pg#73

False

…… is the difference in electric potentials between two parts of a circuit.

EMF pg#73

Electric force

Megnatic field

None of the given

K The sum of the potential differences encountered in moving around a closed circuit is zero. Is known as irchoff's Law

True pg#75

False

We can apply Kirchoff's Law to a circuit that consists of a resistor and capacitor in order to see how current flows through it

True pg#75

False

LECTURE 27

The magnetic field exerts a force upon any charge that moves in the

Circle

Line

medium

field pg#77

The unit of magnetic field that is used most commonly is the tesla.

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True pg#77

False

electric force and magnetic force are very different

True pg#77

False

The electric force is non-zero even if the charge is stationary

True pg#77

False

The Lorentz Force can be used to select charged particles of whichever velocity we want.

True pg#77

False

A magnetic field can be strong enough to lift an elephant

True pg#78

False

magnetic field can never increase or decrease the energy of a particle.

True pg#78

False

The fact that a magnetic field bends charged particles is responsible for shielding the earth from harmful effects of the "solar wind".

True pg#78

False

A large number of charged particles are released from the sun and reach the earth. These can destroy

Earth

Moon

Planents

Life pg#78

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A current that goes around a loop (any shape) produces a

Pulse

Electric field

None of the given

magnetic field pg#79

Magnetic fields are produced by currents.

True pg#79

False

LECTURE 28

A fundamental law of magnetism states that the net flux through a closed surface is always

one

zero pg#81

three

two

when the magnetic flux changes in a circuit, an electro motive force is induced which is proportional to the rate of change of flux is known as Faraday's Law for Induced EMF.

True pg#82

False

LECTURE 29

Alternating current (AC) is current that flows first in one direction along a wire, and then in the reverse direction.

True pg#85

False

square of any AC wave is always…… Therefore its average is not zero.

negative

equal

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none of the given

positive pg#85

AC is generated by a coil rotating in a magnetic field

True pg#86

False

3. AC is particular useful because make it possible to ……voltages.

step up or step down pg#86

step up

step down

none

The basic transformer consists of …… coil/s

One

Four

Two pg#86

three

The inductance (called the self-inductance if there is only one coil)

True pg#86

False

The unit of inductance is called Henry.

True pg#86

False

y, 1 Henry= 1 Tesla meter square/Ampare

True pg#87

False

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Inductance, like capacitance, is purely geometrical and depends only upon the shape and sizes of wires. It does not depend on the current.

True pg#87

False

When we pass current through an inductor a ……magnetic field is produced.

Constant

Changing pg#88

Equal

None of the given

energy can be stored in a capacitor as well as in an inductor

True pg#88

False

LECTURE 30

But Maxwell realized that the above 4 (amperes,faraday's,gauses law) were not consistent with the conservation of charge,

True pg#90

False

the electromagnetic waves inside a micro wave oven have wavelength of 6 cm

True pg#91

False

radio waves are a few metres long

True pg#91

False

The production of electromagnetic waves is done by forcing current to vary rapidly in a small piece of wire

True pg#92

https://vustdentshelp.blogspot.com/

False

The reception of electromagnetic waves requires an

Recever

Device

Tv

Antenna pg#93

The incoming wave has an electric field that forces the electrons to run up and down the

antenna wire pg#93

Recever

Device

None

electric field of a wave is perpendicular to the direction of its motion

true pg#93

false

LECTURE 31

Light travels very fast but its speed is not

Finit

Constant

Vary

Infinite pg#94

https://welcometogameslab.blogspot.com/

Light is electromagnetic wave

True pg#94

False

https://vustdentshelp.blogspot.com/

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different wavelength correspond to different colours

True pg#94

False

If light contained all frequencies with equal strength, it would appear as…….. to us.

Black

Green

White pg#94

Yellow

The sky appears blue to us on a clear day because tiny dust particles high above in the atmosphere reflect a lot of the blue light coming from the sun

True pg#94

False

The speed of light in vacuum is a fixed constant of nature which we usually call

C pg#96

B

D

A

a medium light can travel slower or faster than:

C pg#96

B

D

A

Light coming from air into water bends toward the normal. Conversely, light from a source in the water will bend away from the normal. What if you keep increasing the angle with respect to the normal so that the light bends and begins to just follow the surface? This phenomenon is called total internal reflection and is called the criti θc cal the criticl angle.

Fibre optic cables, which are now common everywhere

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True pg#97

False

if the cable is bent, the light will continue to travel along it.

True pg#97

False

Optical fibres now carry thousands of telephone calls in a cable whose diameter is only a little bigger than a human hair!

True pg#97

False

LECTURE 32

When an object is heate o o o d, it emits light.

True pg#98

False

When the temperature is around 800 C, object is red hot.

True pg#98

False

Around 2500 C object is yellowish-white

True pg#98

False

At temperatures lower than 800 C, infrared (IR) light is emitted but our eyes cannot see this.

True pg#98

False

Each chemical element produces a very distinct pattern of colors called an

emission

emission and spectrum both pg#99

emission spectrum

spectrum

The atmosphere contains various gases which absorb light at many different

Frequincies

Wavelengths pg#100

Both above.

None

Birefringence can occur in any material that possesses some asymmetry in its structure

True pg#101

False

LECTURE 33

Coherent means that both coherent waves should have a fixed phase relative to each other

True pg#102

False

it is very .....to produce coherent light from two separate sources

difficult pg#102

simpile

common

none

When light falls upon a thin film of soapy water, oil, etc. it is reflected from

two surfaces. Pg#104

Three surfaces.

Four surfaces.

None

Whatis diffraction?

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The bending of light around objects is known as diffraction.

LECTURE 34

Light is actually electric and magnetic waves that can travel through empty space

True pg#106

False

The electric and magnetic waves are perpendicular to each other and to the direction of travel

True pg#106

False

Explanation of the photoelectric puzzle came from Einstein

True pg#107

False

Einstein got Nobel Prize in 1905

True pg#107

False

Microwaves, radio and TV waves, X-rays, -rays, etc. are all photons

True pg#108

False

Fluorescence and phosphorence are two phenomena observed in some materials

True pg#108

False

LASER stands for: Light mplification by the timulated mission of adiation

Lasers are important because they emit a very large number of …….all with one single frequency

Photons pg#109

https://vustdentshelp.blogspot.com/

Electrons

Both above

None

LECTURE 35

When light falls on a flat surface, the angle of incidence equals the angle of incidence

reflection pg# 110

both above

none

virtual image is actually

not a real image pg#112

real image

can be real or can't be real

none

flat surface has …….radius of curvature

finite

infinite pg#114

bothe above

none

The "strength" of a lens is measured in diopters

True pg#114

False

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LECTURE 36

heat is the flow of internal energy due to a

Positional difference

Electric flux

none

temperature difference pg#115

joule is the unit of work

True pg#117

False

K = thermal conductivity

A = cross-sectional area

L = Length

Q = Heat transferred

t = duration of heat transfer

delta T = temperature difference

n the heat transferred in time is $Q = KA\left(\frac{\Delta T}{L}\right)t$, This formula allows us to measure if all the other quantities in it are measured

true pg#120

false

Conduction is one possible way by which heat is transferred from one portion of a system to another

true pg#120

false

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LECTURE 37

Work and heat are called path variables

true pg#121

false

LECTURE38

More heat (such as inside the core of a star) will break up atomic nuclei into protons and

Electron

Neutrons pg#126

Both above

None

In statistical mechanics, we interpret entropy as the degree of

Orderd

Disorder pg#128

Both above

None

LECTURE39

The Special Theory of Relativity was created in (1995) by

Faraday's

OHM

Albert Einstein pg#129

None of the above

we measure time by looking at some phenomenon that repeats itself:

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true pg#129

false

LECTURE40

Einstein realized that the photoelectric effect could be explained in:

1903

1904

1905 pg#140

1906

The word "quantum" means:

packet or bundle

packet

bundle

both packet or bundle pg#147

Atoms or molecules can only exist in certain energy states. These are also called

"allowed levels" or quantum states.

allowed levels

quantum states

both "allowed levels" or quantum states. Pg#147

Quantum mechanics is all about probabilities

True pg#150

https://vustdentshelp.blogspot.com/

false

Atoms are building blocks of the

Elements pg#153

Both above

None

All atoms of the same element have the same

Weight

Lenth

With

Mass pg#153

Atoms of different elements are:

Same

Normal

None of the given

Different pg#153

The Bohr model gave wonderful results when compared against the hydrogen spectrum

True pg#157

False

Electrons can be thought of as little spinning balls of charge.

True pg#157

https://vustdentshelp.blogspot.com/

False

The diameter of the nucleus is about 10 million times smaller that the overall diameter of the atom.

True pg#161

False

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