PHYSICS -CLASS TEST -ANSWER KEY

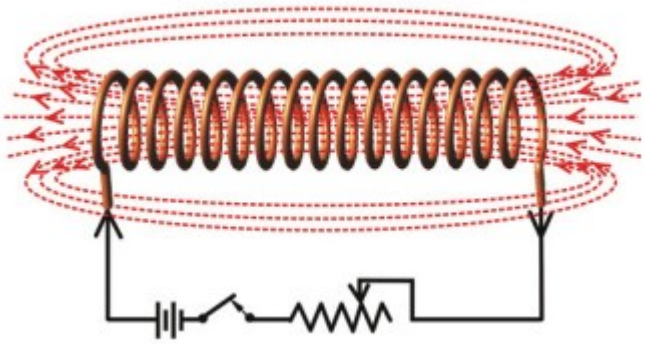
Standard 10

BASED ON FIRST AND SECOND LESSON

CLASS 10

1. Arc lamp
2.Heating effect
3.Discharge lamps are glass tubes fitted with two electrodes.They emit light as a result of discharge of electricity through the gases filled in tubes. When a high potential difference is applied the gas molecules get excited. Excited atoms comes back to their original states for attaining stability. During this process the energy stored in them will be radiated as light. Depending on the difference in the energy levels lights of different colours and other radiations are emitted.
4. a.Total wattage in the circuit=750 W+1000 W+20 W=1770 W
   b. Amperage=Wattage/Voltage
   =1770 W/240 V=7.375
   so the amperage of the fuse wire to be used is,7.4 A
5.Joule's Law
The heat generated(H) in a current carrying conductor is directly proportional to the product of the square of the current(I) in the conductor, the resistance of the conductor (R) and the time(t) of flow of current
ie, $H=I^2Rt$
6. $P=V^2/R$
ie, $R=V^2/p$
R=230*230/100=529 Ω
If the voltage is 180 V,
$P=V^2/R$
P=180 V*180 V/529 Ω
=61 W
7.To reduce vaporisation
8.Right Hand Thumb Rule or Right Hand Screw Rule

9.



a. a current carrying solenoid produces stronger magnetic field inside than outside. So the magentic field is maximum at the point A, and minimum at the point B

10.Experiment Report

Aim

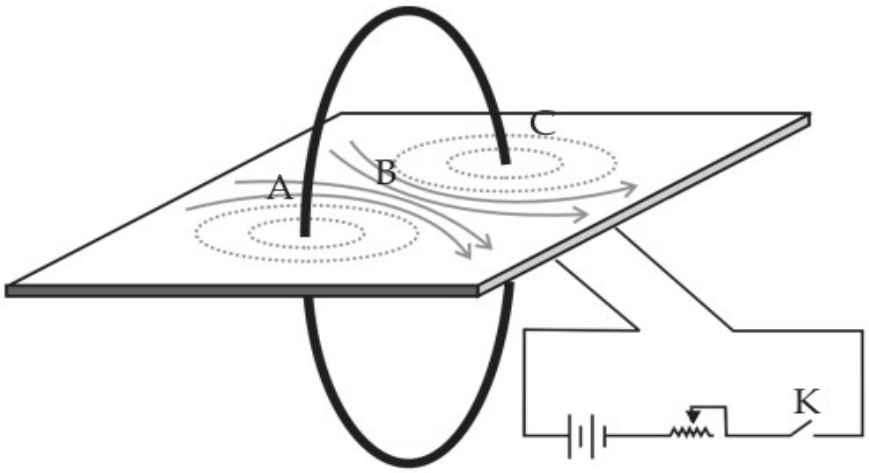
To analyse about the magnetic field produced around a circular coil while passing current through it.

Materials needed

cardboard, Rheostat, switch, battery or cell, coil, magnetic compass

Procedure

Arrange the materials as in the picture



After passing current find the direction of magnetic field at C (shown in diagram) using a compass needle and mark it on the cardboard.

Observation and Conclusion

The magnetic field lines inside the coil are seen in the same direction. When
the current passes in the clockwise direction, the magnetic field lines appear to move away from us into the coil through through the central part of the coil. But if the current passes in anti clockwise direction, the magnetic field lines appear to move outwards us from the coil through its centre.

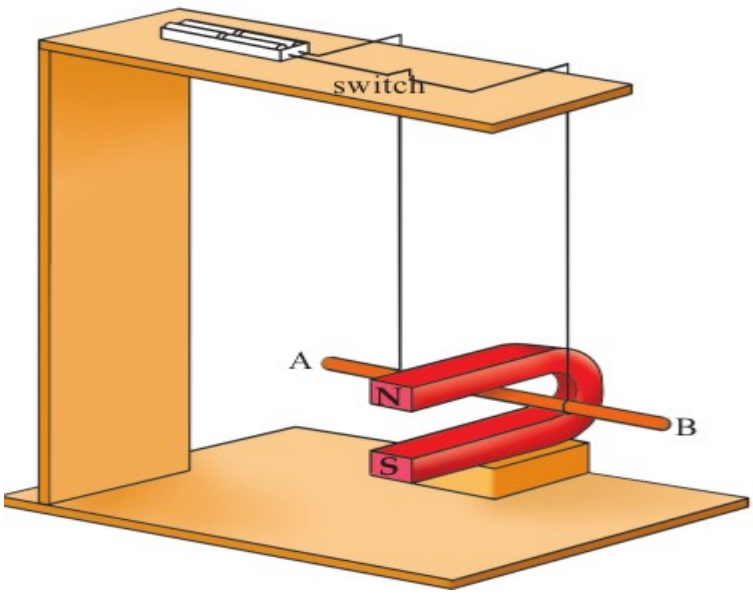
Factors affecting magnetic field

1.Number of turns of the coil
2.Current

11.In the figure a copper wire is suspended between the poles of a U shaped magnet, using thin conductors in such a way that the wire is perpendicular to the magnetic field and it is free to oscillate in the magnetic field.

When the circuit is switched on, the conductor deflects in one direction. While repeating the experiment by changing the direction of the current, the conductor deflects in opposite direction.

While interchanging the position of the magnetic poles direction of defection changes



a. 1. Direction of current

2. Direction of magnetic field

b. When the current in the circuit is reversed, conductor defects in opposite direction.

12. Situations that lead to short circuit

1.If a live wire (phase line) and a neutral wire touch each other or come in direct contact.

2.If the insulation is damaged or old, there will be chance to live wire comes into contact with the neutral.

3.Loose wire connections

4.Faulty wiring of appliances

13.Upward (by applying Fleming's left Hand Rule)